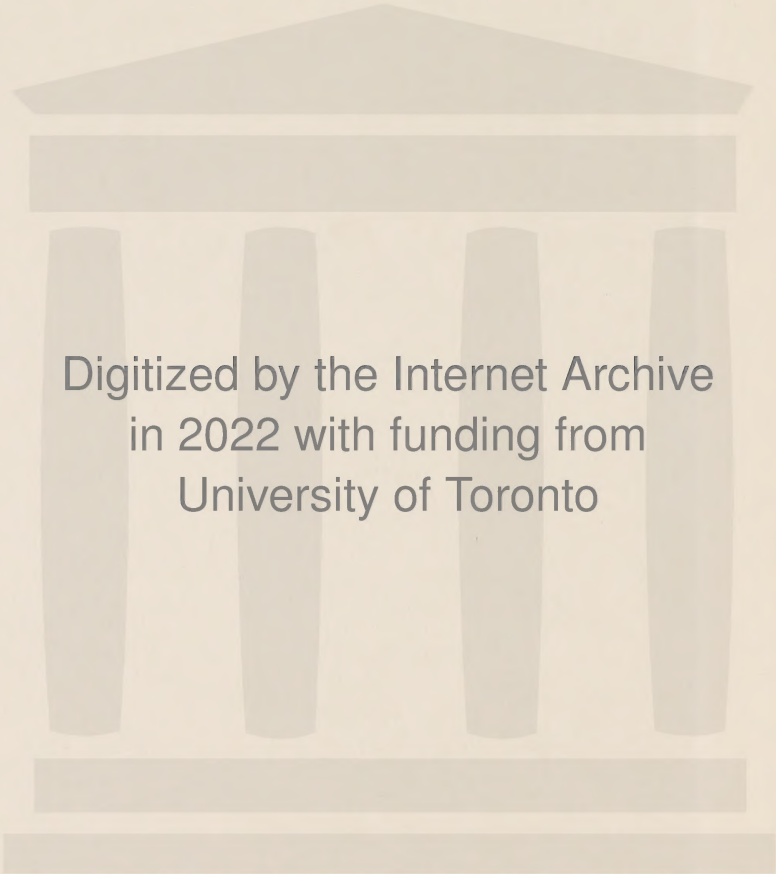

ANNUAL REPORT

OF THE

BUREAU OF INDUSTRIES

FOR THE

PROVINCE OF ONTARIO

1893

(PUBLISHED BY ONTARIO DEPARTMENT OF AGRICULTURE.)

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1894.

TWELFTH ANNUAL REPORT

OF THE

BUREAU OF INDUSTRIES

1893.

To the Honorable John Dryden, Minister of Agriculture:

Sir,—I have the honor to submit herewith the twelfth annual Report of the Bureau of Industries for the Province of Ontario, consisting of:

I. The Weather and the Crops;
II. Live Stock, the Dairy and the Apiary;
III. Values, Rents, and Farm Wages;
IV. Loan and Investment Companies;
V. Chattel Mortgages;
VI. Technical Education.

I have the honor to be, Sir,

Your obedient servant,

C. C. JAMES, Secretary.

Toronto.

CONTENTS.

PART I.

THE WEATHER AND THE CROPS.

THE WEATHER.

The tables more immediately following deal with the matters of temperature, sunshine and precipitation, factors which by their favorable or unfavorable combination make or mar the yield and quality of the products of the field, garden and orchard. Untimely frosts mean the destruction of many crops, while mid-winter thawings may "heave" the fall wheat, rye and clover. A full measure of sunshine during the growing season is of more importance than many suppose, for its undue absence is not without serious effects upon the proper ripening and general quality of certain forms of plant-life; while the important part played in agriculture by snow and rain—by drouth and flood more particularly—is patent to the most casual observer. It will thus be seen that no little importance attaches to the figures to be found in the meteorological tables herewith presented.

TEMPERATURE. The table following shows the temperature from April to September inclusive (the growing season for the bulk of our crops) at ten well distributed stations in Ontario, for the years 1892, 1893, and also the average for the twelve years, 1882-1893.

Months.		Saugeen.	Birnam.	London.	Woodstock.	Stony Creek.	Toronto.	Lindsay.	Gravenhurst	Ottawa.	Rockliffe.	Province averages.
		o	o	o	o	o	o	o	o	o	o	o
April	1893 ..	37.20	41.60	43.12	40.94	42.66	39.21	37.20	36.38	36.47	32.31	38.71
	1892 ..	38.12	41.45	44.97	41.88	43.14	40.98	39.04	38.16	40.13	35.53	40.34
	1882-93	38.43	42.11	43.42	41.87	43.12	40.77	39.04	37.65	39.51	35.99	40.19
May.....	1893 ..	48.99	53.09	55.05	53.12	52.94	51.94	51.74	50.73	53.33	50.85	52.18
	1892 .	50.45	52.44	55.23	52.90	52.91	51.35	51.49	51.87	53.05	50.53	52.22
	1882-93	49.27	53.50	54.96	53.36	53.47	51.85	52.18	51.56	54.69	50.62	52.55
June.	1893 ..	64.81	67.16	71.10	67.85	69.86	66.65	67.23	67.53	68.05	65.46	67.57
	1892 ..	62.33	66.83	69.33	66.91	67.29	65.04	65.20	64.15	64.77	62.53	65.44
	1882-93	60.38	64.67	66.05	65.03	65.87	63.12	63.59	63.19	65.68	61.50	63.91
July.....	1893 ..	65.58	70.21	72.46	69.63	73.07	68.16	67.09	66.73	66.67	63.64	68.32
	1892 ..	65.75	68.18	72.80	68.29	70.82	68.11	67.89	67.48	68.49	65.14	68.29
	1882-93	63.87	67.55	68.92	67.92	70.34	67.28	66.22	66.17	68.18	64.14	67.06
August. ..	1893 ..	63.52	66.28	69.27	66.98	71.87	65.74	64.89	65.64	65.94	61.21	66.13
	1892 ..	64.59	66.74	70.32	66.37	69.52	67.36	66.44	66.76	66.49	61.74	66.63
	1882-93	62.80	65.12	66.14	65.10	68.43	65.51	63.71	63.62	65.49	60 95	64.69
September	1893 ..	54.99	59.02	60.61	57.97	60.15	57.07	54.14	54.73	53.56	47.61	55.99
	1892 ..	57.29	60.39	61.93	59.12	63.00	60.10	57.32	58.42	57.58	52.42	58.76
	1882-93	56.55	59.65	59.71	58.66	61.10	58.69	56.31	56.51	57.10	52.67	57.70
Mean	1893 ..	55.85	59.56	61.94	59.42	61.76	58.13	57.05	56.96	57.34	53.51	58.15
	1892 ..	56.42	59.34	62.43	59.24	61.11	58.82	57.90	57.81	58.42	54.65	58.61
	1882-93	55.22	58.77	59.87	58.66	60.39	57.87	56.84	56.45	58.44	54.31	57.68

The mean temperature of the province for the six months was 58.15°, being .46° below that of the previous year, and .47° above that of the twelve years, 1882-93. Taking the temperature by months it will be seen that in April, May and September, the average of each was lower than the respective figures for both the preceding year and the twelve years' average, while, on the contrary, both June and July temperatures were higher than in either of the other periods. August was warmer than the average of the twelve years showed, but did not reach the record of 1892. Of the ten stations taken for the table, London shows the highest mean temperature for the six months of 1893, although the average of the twelve summers gives the highest figures to Stony Creek. Rockliffe, as usual, has the lowest average temperature for the six months.

Sunshine. The following table gives the record of sunshine at five stations during the six months April-September, for the years 1892, 1893, and also the average for the eleven years 1883-1893. The figures in the last column represent the hours of possible sunshine, calculated for latitude 45°.

Months.	Woodstock.	Toronto.	Parrie.	Lindsay.	Kingston.	Province average.	Sun above horizon lat. 45°.
	hours.	hours.	hours.	hours.	hours.	hours.	hours.
April 1893	105.5	155.0	152.4	152.4	177.1	148.5	406.4
April 1892	175.3	224.8	228.0	234.7	213.1	215.2	
April 1883-93	183.0	195.2	171.4	203.8	193.9	189.5	
May 1893	182.9	213.4	224.7	213.6	220.8	211.1	461.1
May 1892	143.1	162.9	160.1	180.2	180.7	165.4	
May 1883-93	199.6	216.4	196.2	215.3	213.9	208.3	
June 1893	198.7	251.4	258.3	268.0	262.7	247.8	465.7
June 1892	216.6	217.5	142.0	203.8	227.2	201.4	
June 1883-93	234.8	256.7	222.3	254.7	243.6	242.4	
July 1893	279.5	290.5	283.5	284.0	283.7	284.2	470.9
July 1892	321.2	313 5	302.3	329.7	308.6	315.1	
July 1883-93	274.1	288.1	260.3	282.1	272.4	275.4	
August 1893	272.5	272.7	226.2	257.4	266.3	259.0	434.5
August 1892	239.2	234.2	217.7	224.9	242.0	231 6	
August 1883-93	234.1	250.9	215.2	255.9	247.7	240.8	
September 1893	87.7	217.8	198.5	185.9	189.3	175.8	376.3
September 1892	178.5	248.0	215.6	232.1	216.6	218.2	
September 1883-93	190.1	219.1	162.0	208.5	200.9	196.2	
Totals 1893	1126.8	1400.8	1343.6	1361.3	1399.9	1326.4	2614.9
Totals 1892	1273.9	1400.9	1265.7	1405.4	1388.2	1346.9	
Totals 1883-93	1315.7	1426.4	1227.4	1420.3	1372.4	1352.6	

Of the 2,614.9 hours of possible sunshine during the six growing months but 1,326.4 hours were registered in 1893, which is less by 20.5 hours compared with the preceding year, and 26.2 less than the average for the eleven years 1883-93. April was unusually cloudy and so was September, while there was a greater share of sunshine than ordinarily in May, June and August. The record of sunshine in July fell below that of the same month of the previous year, but was higher than its average for the eleven years. This year Toronto registered the most sunshine, while last year it took second place to Lindsay. The record of sunshine at Woodstock was far below the average of the province in 1893, taking the place in this respect usually occupied by Barrie.

PRECIPITATION. The following table shows the fall of rain and snow by districts in the winter months for the years 1892-93, and also the average for the twelve years 1882-1893. In studying the table it is well to remember that an inch of rain is the equivalent of ten inches of snow :

Month.		West and southwest.		Northwest and north.		Centre.		East and northeast.		Province average.	
		Rain.	Snow.	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
November ..	1892...	2.08	9.6	1.76	13.5	2.29	9.4	2.25	10.8	2.09	10.8
	1891...	4.47	8.2	4.40	11.5	3.84	5.0	2.93	4.9	3.91	7.4
	1882-92	2.58	6.7	2.23	13.6	2.44	5.8	2.07	8.9	2.33	8.8
December...	1892...	0.93	8.0	0.49	20.5	0.87	4.0	0.42	14.1	0.68	11.6
	1891...	2.21	4.0	1.18	9.1	2.07	7.1	1.92	5.4	1.84	6.4
	1882-92	1.47	13.7	1.13	20.9	1.39	10.9	1.06	13.8	1.26	14.8
January	1893...	0.32	25.3	0.36	26.3	0.52	26.6	0.51	23.7	0.43	25.5
	1892...	0.38	21.7	0.79	23.2	0.19	21.7	0.40	20.0	0.44	21.7
	1882-93	1.23	17.2	1.00	27.8	1.21	18.9	0.96	22.0	1.10	21.5
February ...	1893...	1.15	23.9	0.30	23.6	1.05	28.4	0.44	21.1	0.73	24.3
	1892...	1.66	10.2	0.14	17.5	0.77	17.3	0.06	22.0	0.66	16.7
	1882-93	1.72	11.8	0.69	21.8	1.30	13.7	0.79	19.0	1.12	16.6
March.....	1893...	1.19	4.4	0.96	9.1	1.70	3.8	0 90	4.4	1.19	5.4
	1892...	0.81	5.3	0.18	8.9	0.66	5.6	0.35	11.0	0.50	7.7
	1882-93	1.23	10.0	0.77	14.4	1.13	9.8	0.94	13.9	1.02	12.0
Totals ..	1893...	5.67	71.2	3.87	93.0	6.43	72.2	4.52	74.1	5.12	77.6
	1892...	9 53	49.4	6.69	70.2	7.53	56.7	5.66	63.3	7.35	59.9
	1882-93	8.23	59.4	5.82	98.5	7.47	59.1	5.82	77.6	6.83	73.7

The rainfall was light during the five months, being only 5 12 inches, as compared with 7.35 inches in the previous year and 6.83 inches for the twelve years ; but the snowfall was larger than usual, amounting to 77.6 inches, compared with 59.9 inches in 1892 and an average of 73.7 inches for the twelve years 1882-93. The chief feature of the table is the unusually heavy snowfalls in November, January and February, and the comparatively small amount of snow falling in March. Although, as might be expected, snow fell in greatest quantities in the north and northwest district, yet the precipitation there did not equal its average for the twelve years ; while in the centre and west and southwest districts the snowfall was heavy compared with their respective records for the twelve years.

The rainfall during the six growing months of April-September is, however, of more importance than the winter precipitation, and hence the interest attached to the following table, which gives the precipitation for the six months, April-September, and the total for the season, together with the average for the twelve years 1882-93 :

Months.	West and southwest.		Northwest and north.		Centre.		East and northeast.		Province average.	
	1893.	1882-93.	1893.	1882-93.	1893.	1882-93.	1893.	1882-93.	1893.	1882-93.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
April	3.37	1.84	1.91	1.46	2.96	1.66	2.20	1.43	2.61	1.60
May	2.42	3.32	2.85	2.49	3.78	2.70	4.33	2.58	3.35	2.77
June	2.91	3.44	3.34	2.86	3.06	3.22	3.28	2.93	3.15	3.11
July	1.67	2.50	2.75	2.68	2.10	2.39	3.22	2.95	2.44	2.63
August	2.03	2.76	1.57	2.81	3.78	2.70	3.29	3.00	2.67	2.82
September	1.42	2.41	2.34	2.99	1.59	2.39	2.48	2.54	1.94	2.58
Totals....	13.82	16.27	14.76	15.29	17.27	15.06	18.80	15.43	16.16	15.51

Compared with the average for the twelve years the precipitation during the six months above named was greater, being 16.16 inches as against 15.51 inches, the increase, however, being confined to the first three months of the table. May experienced the greatest rainfall of the six months, although June is the wettest month taking the twelve years. The east and northeast district recorded the largest fall of rain during the growing season, although the centre district is credited with the greatest precipitation for the twelve years.

FARM LANDS OF THE PROVINCE.

RURAL AREA ASSESSED. The table below gives the acreage assessed in townships which are municipally organized by county groups, the total for the province being given for all classes of land for 1892 and 1893 :

Districts.	Acres assessed.			Acres cleared.		Acres Woodland	Acres swamp, marsh or waste.	Per cent. cleared.
	Resident.	Non-resident.	Total.	1893.	1892.			
Lake Erie.....	2,279,220	58,757	2,337,977	1,475,864	1,445,756	769,795	92,318	63.1
Lake Huron.....	2,243,758	55,296	2,299,054	1,391,229	1,374,372	629,763	278,062	60.5
Georgian Bay	1,965,455	59,963	2,025,418	1,099,478	1,083,570	674,079	251,861	54.3
West Midland....	3,224,792	27,957	3,252,749	2,346,991	2,340,885	611,730	294,028	72.2
Lake Ontario	3,002,165	47,780	3,049,945	2,347,536	2,325,886	441,008	261,401	77.0
St. Law. & Ottawa	5,091,272	235,691	5,326,963	2,391,681	2,374,037	2,064,035	871,247	44.9
East Midland ..	2,574,402	132,311	2,706,713	879,779	867,907	1,436,200	390,734	32.5
Northern Districts	1,559,662	400,799	1,960,461	179,006	176,013	1,526,619	254,836	9.1
The Province... 1893	21,940,726	1,018,554	22,959,280	12,111,564	.....	8,153,229	2,694,487	52.8
The Province... 1892	21,751,770	894,864	22,646,634	....	11,988,426	8,029,341	2 628,867	52.4

The rural area assessed now amounts to 22,959,280 acres, an increase of 312,564 acres compared with the previous year. There are 12,111,564 acres cleared, or 123,138 more than in 1892. An increase is observable in the figures for woodland and for swamp and waste land, although the per cent. of cleared land reaches 52.8, or .4 higher than in the preceding year.

AREA IN PASTURE. In the following table the number of acres in pasture is given by county groups and for the province for each of the five years 1889-93, and also the percentage of cleared land in pasture in 1893 :

Year.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres
1893....	247,557	376,258	228,361	535,379	367,048	695,576	199,514	32,487	2,682,180
1892.....	238,565	350,067	222,766	504,588	360,243	673,231	184,389	28,191	2,562,040
1891.....	269,189	381,578	234,623	530,858	379,627	693,923	201,289	30,194	2,721,281
1890.....	246,107	339,984	214,561	513,612	369,063	641,597	195,303	21,865	2,542,092
1889.....	249,623	319,428	221,087	511,618	410,416	685,401	191,194	19,195	2,607,962
Per cent. of cleared land in 1893	16.8	27.0	20.8	22.8	15.6	29 1	22.7	18.1	22.1

There is an increase in the acreage of pasture in every group, but while the total area is 120,140 acres more than in 1892, it fails to reach the figures for 1891 by 39,101 acres. There is now 22.1 per cent. of the cleared land of the province in pasture, an increase of .7 over the preceding year. The highest percentage is found in the St. Lawrence and Ottawa dairy district, where the figures are 29.1, while in the Lake Ontario group the figures reach only 15.6.

ACREAGE UNDER CROP. The next table gives the number of acres under staple field crops for each of the five years 1889-93, together with the average for the twelve years 1882-93:

Field crops.	1893.	1892.	1891.	1890.	1889.	1882-93.
	acres.	acres.	acres.	acres.	acres.	acres.
Fall wheat	913,954	966,522	849,956	720,101	822,115	909,078
Spring wheat	356,721	651,302	510,634	601,753	398,610	553,624
Barley	467,315	499,225	553,166	701,326	875,286	699,916
Oats	1,936,644	1,861,469	1,840,636	1,882,366	1,923,444	1,702,513
Rye	68,486	73,073	67,865	103,061	90,106	98,160
Peas	738,741	774,732	752,453	781,206	708,068	683,591
Corn—Husking	217,294	181,463	241,086	223,836	187,116	212,067
Corn—Fodder	95,865	91,403				
Buckwheat	133,828	125,104	107,879	90,111	56,398	79,289
Beans	48,858	33,249	41,451	39,456	21,830	28,676
Potatoes	142,601	145,703	160,218	158,094	145,812	153,566
Mangel-wurzels	21,519	22,026	22,961	25,953	21,211	19,917
Carrots	9,288	9,941	9,858	11,977	11,261	10,289
Turnips	136,604	129,627	126,075	111,055	111,103	109,638
Hay and clover	2,766,894	2,515,367	2,549,975	2,462,002	2,386,223	2,348,934
Total	8,054,612	8,080,206	7,834,213	7,912,297	7,758,583	7,609,238

The total acreage under field crops in 1893 amounted to 8,054,612, which is less by 25,594 acres than the figures for the previous year. The greatest falling off occurs in the case of spring wheat, but there also has been a decline in the figures for fall wheat, barley, rye, peas, potatoes, mangel-wurzels and carrots. The increased acreage given to fodder corn and hay and clover is suggestive of the influence the dairy movement is exercising on farm practice.

The table following gives the acreage by county groups and for the province, and for the same periods, of all the crops mentioned in the preceding table:

Year.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern districts.	The province
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
1893	1,046,128	869,971	733,656	1,535,218	1,660,138	1,490,433	581,869	137,199	8,054,612
1892	1,002,829	869,630	733,539	1,542,550	1,696,482	1,503,724	593,111	138,341	8,080,206
1891	990,197	844,278	696,561	1,504,482	1,63[illegible],753	1,463,449	571,755	127,738	7,834,213
1890	996,955	851,934	696,361	1,539,165	1,669,314	1,474,437	569,117	115,014	7,912,297
1889	949,859	812,757	719,473	1,481,308	1,667,961	1,450,920	582,343	93,962	7,758,583
Average 1882-93	940,050	794,590	674,989	1,471,688	1,624,007	1,407,448	561,313	94,668	7,568,753

The three districts first named in the table show an increase in the total acreage of field crops, while the remaining five groups experience the reverse. The Lake Ontario counties have the largest area under crop.

PROPORTIONAL AREAS UNDER CROP. The table following shows the relative distribution of the various crops per 1,000 acres cleared, by county groups and for the province, in 1892 and 1893, together with the average for the twelve years 1882-93 :

Districts.		Fall Wheat.	Spring Wheat.	Barley.	Oats.	Rye.	Peas.	Corn.	Buckwheat.	Beans.	Potatoes.	Mangel-wurzels.	Carrots.	Turnips.	Hay and Clover.	Total.
Lake Erie	1893	169.2	2.0	19.5	122.0	5.8	38.5	82.5	9.7	26.2	10.3	1.1	.4	2.1	219.5	708.8
	1892	188.5	8.5	20.1	123.9	7.8	41.1	68.7	10.5	17.6	10.3	1.2	.6	2.1	192.7	693.6
	'82-93	171.5	8.8	27.6	126.3	8.5	45.9	73.1	8.4	15.3	11.8	1.1	.5	1.8	210.2	710.8
Lake Huron	1893	100.3	11.3	26.9	158.6	.5	62.0	15.9	2.2	.9	7.6	2.4	.8	12.2	223.7	625.3
	1892	107.2	32.6	27.5	149.7	1.0	68.9	12.4	1.9	.5	8.7	2.0	.6	11.8	207.9	632.7
	'82-93	116.5	28.0	45.5	152.0	.8	67.6	9.8	1.2	.5	10.1	2.0	.8	10.8	199.7	645.3
Georgian Bay	1893	64.3	33.7	36.1	183.2	2.2	84.0	7.7	4.0	.6	12.0	1.0	.8	16.8	220.9	667.3
	1892	71.7	60.9	41.5	169.4	1.3	87.8	6.0	2.9	.2	12.6	.8	.9	14.9	206.1	677.0
	'82-93	78.4	69.4	50.5	161.3	2.7	81.4	2.6	1.3	.3	13.7	1.0	1.1	13.3	199.9	676.9
West Midland	1893	109.1	20.2	41.6	173.6	2.0	58.7	18.7	1.1	.6	10.3	2.9	.8	18.6	195.9	654.1
	1892	110.5	41.7	41.1	159.4	2.4	66.2	16 1	1.5	.4	10.2	2.9	.7	17.3	188.6	659.0
	'82-92	114.2	34.5	56.7	158.4	2.2	62.6	13.9	1.1	.5	11.8	2.9	1.0	16.3	187.7	663.8
Lake Ontario	1893	70.9	41.4	74.0	142.7	9.1	88.2	19.5	24.7	1.0	12.7	2.1	.7	16.1	204.1	707.2
	1892	77.1	84.1	79.1	136.1	9.2	85.4	19.7	20.9	.8	12.6	2.5	.9	15.8	185.2	729.4
	'82-92	71.3	71.9	118.5	130.9	13.2	71.7	14.6	10.7	.9	13.9	2.3	1.2	13.8	184.7	719.6
St. Lawrence & Ottawa	1893	4.3	41.5	19.8	173.7	7.8	32.9	23.0	13.7	1.6	14.6	.7	.8	2.4	286.4	623 2
	1892	4.0	56.5	24.6	185.4	7.7	38.9	21.9	15.0	1.3	15.4	.9	.9	2.2	258.7	633.4
	'82-93	6.8	52.5	38.8	176.8	13.7	41.2	12.0	13.3	1.5	17.3	.8	.8	2.0	259.4	636.9
East Midland	1893	23.4	57.3	44.9	164.8	12.6	74.2	17.6	20.1	1.0	12.5	1.9	1.2	9.9	220.0	661 4
	1892	24.1	105.8	52.8	150.3	14.5	73.7	16.1	17.7	1.1	13.0	2.4	1.1	10.2	200.6	683.4
	'82-93	31.8	90.0	90.4	148.6	20.8	66.3	10.8	10.1	.8	14.9	1.7	1.0	7.8	197.9	692.9
Northern Districts	1893	3.5	37.2	17.5	176.3	5.3	81.5	3.4	5.4	1.0	20.5	.6	1.9	12.3	400.0	766.4
	1892	4.0	51.4	16.4	185.5	5.6	88.9	3.2	6.1	.9	23 6	.5	1.9	15.8	382.2	786.0
	'82-93	4.5	65.8	16.0	168.6	7.2	77.0	3.1	5.2	.8	24.9	.7	1.4	17.6	370.5	763.3
The Province	1893	75.5	29.4	38.6	159.9	5.6	61.0	25.9	11.0	4.0	11.8	1.8	.8	11.3	228.4	665.0
	1892	80.6	54.3	41.7	155.3	6.1	64.6	22.8	10.4	2,8	12.2	1.8	.8	10.8	209.8	674.0
	'82-93	81.0	49.3	62.3	151.6	8.7	60.9	18.9	7.1	2.5	13.7	1.8	.9	9.8	209.2	677.7

The proportion of cleared land devoted to the crops enumerated above was 665 out of 1,000 acres, or nine acres less than in 1892. Spring wheat and barley show the greatest falling off, and hay the principal increase.

FALL WHEAT.

The bulletin issued in November, 1892, had the following to say regarding the new fall wheat crop : " Owing to the protracted harvesting of the spring-sown crops and varying conditions of weather, sowing of the new fall wheat crop was spread over a larger period of time than usual. Most of the sowing was done September 1st to 15th. The early sown looks better than the late sown. Although the growth has not been as heavy as might be desired, on the whole the condition is very good. Very little damage has been observed from any source." The bulletin also stated that there might be a decrease in acreage, an opinion which was confirmed by the figures computed later.

The April bulletin which was based upon information of correspondents, writing under date of the 17th of the month, thus referred to fall wheat: "On the whole, the winter has been quite favorable to this crop. Ice has done some damage, especially on undrained soils. Smothering by too much snow is reported from some northern sections. The Lake Erie counties send very favorable reports, the only damages being through freezing in some places along the lake front. Apart from this, very little has been or will be plowed up. In the Lake Huron district, Lambton sends very good reports, Huron good, and Bruce fair to poor. The reports from Grey and Simcoe are below the average. The West Midland are uniformly good. The Lake Ontario county reports are above the average. The East Midland counties report a limited average, but of good condition. The St. Lawrence and Ottawa counties report but little fall wheat. In the northern sections, the season is not far enough advanced for reports. Taking the province as a whole, the fall wheat crop has come out of the winter in good shape, very little damage has been done, very little will be plowed up, and the prospects are very promising and above the average."

The June bulletin stated that the reports as to the condition of the crop were not so favorable on June 1st as on April 17th, the date of the former bulletin. "In some townships as much as one-half of the entire crop has been plowed up, in others from one-third to one-quarter has been seriously injured by rain and frost; on the whole at least one-quarter of the crop of the entire province has been plowed up and sown to other crops. Great variation is reported as to that which has been left, the best and most vigorous fields being those lying high or well drained. The Lake Erie counties report fair prospects. Lake Huron and Georgian Bay, under the average and a high percentage plowed up; West Midland, fair to good; East Midland, average. On the whole the returns for the province may be summarized thus: acreage reduced by at least one-quarter; growth, backward; general condition, variable; prospects on June 1st not quite up to the average."

The following is found in the July bulletin: "From June 1st, the date of our previous reports, to July 1st, the general condition of the fall wheat crop materially improved in most parts of Ontario. As stated before, at least one-quarter had been plowed up. In many places fields or portions of fields were left that should have been plowed up, and these at present appear thin and weak. The total produce will probably fall below the average owing to the reduced acreage, and the present prospect of the production per acre being a little less than the average. Many farmers report excellent prospects, but the majority indicate only fair prospects at the present time."

The August bulletin referred to the fall wheat crop as follows: "Harvesting began in the southwest about July 7th; on August 10th wheat was being cut in Algoma, and on the 15th, in the northeastern section of the province. The great bulk of the crop was cut between July 15th and July 25th. As to yield, the reports indicate an average for the entire province of 19.6 bushels per acre. Some threshing had been done, but most of the reports were estimated in the sheaf. As the reports of thin straw and small and shrunken grain are quite common from all parts of Ontario, and the fields are somewhat uneven, our later reports from exact threshing results may show a yield lower rather than higher than this. The yield per acre appears to be a little higher than the general comments of the correspondents would support. The condition is up to the average, reports of rusting are rather numerous, but little or no damage from insects is mentioned. The grain in many sections is reported as having filled a little too rapidly and to be small or shrunken. On the whole, the prospects, according to our correspondents, point to an average yield of fair quality.

The November bulletin characterized the crop of fall wheat as a good one in nearly all parts of the province, although it will be seen that the average yield per acre falls a little short of that for the twelve years, 1882-93.

The yield of fall wheat in the province in 1893 is nearly three million bushels less than in the preceding year. Every district excepting the St. Lawrence and Ottawa group experienced a decrease in acreage compared with 1892, the total area, 913,954

acres, being 52,568 less than in the former year. The average yield of the province for 1893 is 19.2 bushels per acre, which is 2 bushels less than in the preceding year, and .8 bushel below the average for the twelve years. The northern districts show the largest

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	249,788	4,539,653	18.2	272,537	5,071,262	18.6	228,930	4,359,134	19.0
Lake Huron	139,483	2,691,726	19.3	147,345	3,087,012	21.0	144,591	2,895,582	20.0
Georgian Bay	70,734	1,216,221	17.2	77,702	1,721,786	22.2	78,708	1,615,189	20.5
West Midland	255,994	5,236,003	20.5	258,618	6,082,323	23.5	254,110	5,269,057	20.7
Lake Ontario	166,381	3,262,621	19.6	179,337	3,906,047	21.8	161,296	3,294,793	20.4
St. Lawrence and Ottawa	10,361	202,233	19.5	9,371	207,601	22.2	15,068	274,050	18.2
East Midland	20,579	382,579	18.6	20,904	398,547	19.1	25,798	499,634	19.4
Northern districts	634	14,212	22.4	708	17,919	25.3	577	11,735	20.3
Totals	913,954	17,545,248	19.2	966,522	20,492,497	21.2	909,078	18,219,174	20.0

average yield per acre for the year, although the West Midland counties have the best average yield for the twelve years. The West Midland group is the leading fall wheat district, with the Lake Erie counties a close second.

THE NEW FALL WHEAT CROP. Reports vary regarding the acreage and condition of this crop, but speaking generally it may be said that the area of fall wheat in western Ontario (where the bulk of the crop is grown) has decreased perhaps ten per cent., while in the eastern half of the province, in the counties ranging from Ontario to Leeds, a considerable increase is noted. The total area will be therefore less than usual, and while the crop in eastern Ontario is promising, having had an excellent start, that in the great fall wheat counties of the west is not so favorable, the ground being dry and hard at sowing, particularly on clays. Some western sections, notwithstanding the lower average, make a splendid showing both as regards acreage and condition, while adjoining sections claim a shrinkage in fall wheat area of 25 per cent. A few correspondents make mention of Hessian fly and wire worm, but these were confined to two or three localities. Grasshoppers, however, did considerable damage in various sections. Sowing covered a period ranging from the 21st of August to the 7th of October, but the bulk of the crop was sown in the first two weeks of September. A request for the favorite variety of fall wheat has brought out a list that would rival a seedsman's catalogue, and which proves that our farmers are seeking the best that can be had. The Clawson (red and white), Manchester, Democrat, Hybrid Mediterranean, Surprise and Velvet Chaff appear to be the most popular in the order named, and as these were named as the leaders in favor in our bulletin of two years ago it would seem that none of the newer and much advertised varieties have so far been able to displace them.

SPRING WHEAT.

"The continued rains of the late spring," remarked the June bulletin, "delayed sowing in most counties. In the north and northeastern sections the larger portion of the spring wheat was yet to be sown on June 1st. The dry weather following the heavy rains crusted the soil so that in many places the young plants had difficulty in pushing through. As a result the fields were more or less patchy. That which had made growth was reported in fine appearance. The acreage will probably be about the same as last year. The prospects on June 1st were fair for what had made a start."

The condition of the crop on July 1st was thus summarized in the bulletin issued in that month : "Owing to the poor crop of 1892 and the lateness of the spring, the acreage of spring wheat is less this year than last year. Very little is reported from the western half of the province and the condition is below the average. In the Georgian Bay counties the high land looks well, the low land wheat is thin and late. The Lake Ontario counties reports are variable, some excellent, some poor—on the whole the crop is only fair, but ahead of 1892. In the St. Lawrence and Ottawa group spring wheat is late, reduced in acreage and of fair prospects. In the East Midland group the condition is fair. Taking the province as a whole the spring wheat crop is not altogether satisfactory, but the production will probably be in slight excess of 1892."

The August bulletin had the following not very cheering account of spring wheat : "This is probably the poorest grain crop of the present season. Everything appears to have been against it. First, the wet spring gave a late and uneven start to the wheat. Then the drouth of many districts caused too rapid filling and has produced much shrunken and inferior grain. Rust has been common in all parts of the province. The midge and other insects are reported as being very destructive this year, especially in West Midland, Georgian Bay and East Midland districts. Grasshoppers were more numerous than usual, and in the Georgian Bay and neighboring counties did a large amount of destruction. Maturing of the crop has been very uneven and harvesting has been early in some counties, quite late in others. On the whole spring wheat promises to be a very poor crop, small in quantity and below the average in quality—in fact, from the reports of correspondents, it might almost be set down as a failure."

The November bulletin described the crop as almost universally unsuccessful. Good accounts of the crop were scattering, while doleful references were general. The acreage and yield is given in the following table by county groups and for the province for 1892 and 1893, together with the average for the twelve years 1882-93 :

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	2,874	32,961	11.5	12,322	126,898	10.3	11,700	167,818	14.3
Lake Huron	15,750	184,261	11.7	44,773	598,496	13.4	34,691	492,275	14.2
Georgian Bay	37,079	463,488	12.5	66,017	808,670	12.2	69,694	1,014,529	14.6
West Midland	47,483	628,928	13.2	97,642	1,264,339	12.9	76,822	1,156,995	15.1
Lake Ontario	97,155	974,453	10.0	195,494	2,103,090	10.8	162,465	2,515,045	15.5
St. Lawrence and Ottawa	99,322	1,306,802	13.2	134,211	2,265,243	16.9	116,639	1,918,576	16.4
East Midland	50,394	489,191	9.7	91,792	985,404	10.7	73,145	1,026,936	14.0
Northern Districts	6,664	105,979	15.9	9,051	138,255	15.3	8,468	150,029	17.7
Totals	356,721	4,186,063	11.7	651,302	8,290,395	12.7	553,624	8,442,203	15.2

The table does not contain much that is encouraging so far as spring wheat is concerned. The falling off in the acreage is surprisingly large, every group contributing to the decrease, leaving the total area at 356,721 acres, or 294,581 less than in the preceding year. The average yield per acre for the province is only 11.7 bushels, being one bushel below that of 1892 and 3.5 bushels lower than the average for the twelve years. Between the decline in area and the smaller average yield per acre, the total yield of the province has fallen to 4,186,063 bushels which is less than half of the average for the past twelve years. The Lake Ontario group has fallen behind as the leading spring wheat district, and the St. Lawrence and Ottawa counties now lead.

BARLEY.

Correspondents for the June bulletin wrote up to the first of the month, and at that time sowing was in progress. It was their thought that the acreage would be still further reduced, an opinion which proved to be correct. Nothing could then be said as to condition, as very little was above the ground.

The July bulletin contained the following account of the barley crop: "Our previous bulletin reported sowing in progress on June 1st. The backwardness and variable nature of the present season may be understood when we state that even as late as July 1st a few fields were just being sown. Most of the crop, however, was beginning to head out at that time. The crop is very uneven, being reported as very good on high, well-drained soils that were early sown, thin and poor on low-lying soils. The straw is pretty generally reported as short, but the grain appears to be filling very well. The most unfavorable reports come from the districts that were formerly known as the leading Ontario barley districts, principally along the front of Lake Ontario and in the Bay of Quinte regions. The crop will be a little late; it will be quite a bit under the average in quantity, but unless unfavorable weather occurs during July, it will be fully up to or above the average in quality."

The subsequent history of the crop was continued in the August bulletin in the following words: "Barley had a later start than usual; then in most parts of the province the growth of straw was checked by dry weather, and filling of the grain and maturing took place too rapidly. The straw, as a consequence, is somewhat short and the quantity is below the average yield per acre. The grain is, on the whole, of fine bright color, but smaller and lighter in weight than usual. The yield per acre is below the average. The six-rowed variety appears to have done better than the two-rowed, the short growing season being against the perfect development of the latter. The barley crop reports may be summed up thus: total yield for the province below the average, grain lighter in weight than usual but first-class in color."

In the brief review of grain crops contained in the November bulletin it was said: "Two-rowed barley has been dropped with singular unanimity all along the line, and every county pronounced against it. Out of several hundred correspondents less than a dozen had a good word for it. Corn has done as well as could be expected owing to the extreme drouth; in the southwest the ears are short, but the grain has turned out about the average. Corn for fodder is reported uneven, owing to the variable rainfall."

Statistics of acreage and yield by county groups and for the province for 1892 and 1893, with the average for the twelve years 1882-93 are presented in the following table:

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	28,717	571,362	19.9	29,081	649,488	22.3	36,912	892,696	24.2
Lake Huron	37,484	804,671	21.5	37,801	936,046	24.8	56,498	1,488,174	26.3
Georgian Bay	39,740	933,610	23.5	44,966	1,172,530	26.1	50,769	1,292,864	25.5
West Midland	97,555	2,258,329	23.1	96,251	2,529,277	26.3	126,216	3,537,392	28.0
Lake Ontario	173,853	3,509,588	20.2	183,978	4,553,022	24.7	267,877	6,887,901	25.7
St. Lawrence and Ottawa	47,319	929,778	19.6	58,393	1,293,049	22.1	86,126	2,068,516	24 0
East Midland	39,520	730,790	18.5	45,875	1,069,877	23.3	73,464	1,748,632	23.8
Northern Districts	3,127	67,960	21.7	2,880	71,029	24.7	2,054	48,318	23.5
Totals	467,315	9,806,088	21.0	499,225	12,274,318	24.6	699,916	17,964,493	25.7

There is a shrinkage in the acreage of barley in every group excepting the West Midland and the Northern Districts, the result being that the area of the barley fields of 1893 was less by 31,910 acres than in the preceding year. While the average yield per

acre for the province for the twelve years is 25.7 bushels it is only 21.0 bushels in 1893. None of the groups this year reached the average yield of the province for 1882-93. The Lake Ontario and West Midland groups raise more barley than the remainder of the province combined.

OATS.

Upon well drained and high lands oats were put in early and such had a vigorous and promising appearance at the beginning of the month. Most of the crop, however, was put in late. An increased acreage is reported, especially from the Lake Huron and Georgian Bay counties. As far as it was possible to report, the returns were very favorable; in fact this crop was reported as the most promising of the grain crops on June 1st.

These rather hopeful words concerning oats were contained in the July bulletin: "The crop continues to be, as was reported on June 1st, the most promising of the grain crops. Through the western and eastern sections the condition is excellent; along Lake Ontario it is quite up to the average. The yield on high and well-drained lands will be good, on low-lying land only fair. In many sections the growth of straw is almost too rank. The reports as to this crop are far more uniform than as to the other grain crops, and we may expect a yield somewhat above the average if the proper maturing of the grain is permitted by favorable weather."

The August bulletin, however, showed that the tone of the July reports had been too hopeful. It said: "The oat crop has not turned out so well as its condition on July 1st indicated. The excessive dry weather checked the growth of straw, which as a consequence will be somewhat shorter than usual, and will give a lighter yield per acre. The grain has not filled perfectly and will be a little light; the yield will be only fair. Some damage by rust has been reported, but the almost universal complaint is from grasshoppers. Four-fifths of the correspondents from the Lake Erie counties refer to them. From Lambton, Simcoe, Middlesex, Northumberland and Durham, Prince Edward, Lennox and Addington and Frontenac come reports of great destruction to everything growing in the fields. Correspondents report them more numerous and destructive than for many years. Although the acreage originally sown to oats was larger than usual, the total yield will, contrary to earlier prospects and indications, probably fall considerably below what would be considered a good yield for Ontario."

The November bulletin remarked regarding this crop: "Oats are a light crop owing to the ravages of rust and the prevalence of grasshoppers."

The acreage and yield by county groups and for the province are given in the appended table:

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	179,977	5,057,594	28.1	179,183	5,525,918	30.8	168,618	5,837,526	34.6
Lake Huron	220,695	6,957,246	31.5	205,681	7,482,859	36.4	188,601	6,623,735	35.1
Georgian Bay	201,443	6,426,031	31.9	183,583	6,687,382	36.4	162,040	5,405,447	33.4
West Midland	407,537	13,715,732	33.7	373,111	14,061,563	37.7	352,399	13,305,019	37.8
Lake Ontario	335,086	10,323,411	30.8	316,658	11,625,133	36.7	295,891	10,678,141	36.1
St. Lawrence and Ottawa	415,368	11,137,164	26.8	440,184	14,104,168	32.0	392,521	12,652,727	32.2
East Midland	144,986	4,025,484	27.8	130,418	4,200,054	32.2	120,754	3,779,698	31.3
Northern Districts	31,552	941,867	29.9	32,651	1,067,976	32.7	21,689	671,758	31.0
Totals	1,936,644	58,584,529	30.3	1,861,469	64,758,053	34.8	1,702,513	58,954,051	34.6

The St. Lawrence and Ottawa counties and the northern districts failed to equal their respective acreages of the previous year, but the improvement in the other groups have had the effect of increasing the area to 1,936,644 acres, a gain of 75,175 over the

figures of 1892. The average yield per acre has been low, that of the province being 30.31 bushels, compared with 34.8 in 1892 and an average of 34.6 for the twelve years. Notwithstanding the increase in area, the smallness of the average yield per acre has lessened the total yield of the province by over six million bushels compared with the previous year. The West Midland counties produce the greatest quantity of oats.

RYE.

"So little rye is now being grown in Ontario," ran the April bulletin, "that reports are very limited; the largest numbers have been received from the Lake Ontario district. The section between Toronto and Kingston, sends the most favorable reports as to condition. What rye there is in this province appears to be thrifty and promising."

The June bulletin was to a similar effect: "Fewer reports than usual have been received as to rye. The crop, however, seems to have stood the winter and spring better than fall wheat and to be in a promising condition. The total amount of grain for the province will be small."

The July bulletin also re-echoed the message of the previous announcements regarding rye: "Only about one correspondent out of five reports to us as to rye, but the limited quantity grown appears to be in good condition. On July 1st it was about headed out."

The August bulletin stated "that much of the rye has been cut and fed green; the small quantity left to mature had turned out a fair crop in most cases. Drouth checked its growth somewhat."

The following table gives acreage and yield by county groups and for the province:

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	8,578	126,711	14.8	11,223	165,839	14.8	11,293	174,708	15.5
Lake Huron	681	9,802	14.4	1,447	24,049	16.6	1,000	17,455	17.5
Georgian Bay	2,387	34,873	14.6	1,391	23,559	16.9	2,721	47,946	17.6
West Midland	4,674	75,252	16.1	5,687	95,611	16.8	4,916	81,432	16.6
Lake Ontario	21,441	290,774	13.6	21,352	301,816	14.1	29,879	437,974	14.7
St. Lawrence and Ottawa	18,653	281,361	15.1	18,390	317,409	17.3	30,528	540,749	17.7
East Midland	11,121	161,046	14.5	12,590	183,150	14.5	16,892	261,829	15.5
Northern Districts	951	14,952	15.7	993	21,071	21.2	931	17,856	19.2
Totals	68,486	994,771	14.5	73,073	1,132,504	15.5	98,160	1,579,949	16.1

The acreage of rye in the province is still decreasing although a little more than usual is reported in the Georgian Bay and Lake Ontario counties. The average yield per acre is 14.5 bushels, which is one bushel less than in 1892, and 1.6 bushels lower than the average for the twelve years. The greater part of the rye crop of the province is grown in the Lake Ontario and St. Lawrence and Ottawa counties.

PEAS.

The following was given in the June bulletin regarding peas: "An increased acreage in Simcoe, Grey, Bruce and Huron is reported. A slight decrease in the counties of the West Midland, and Lake Erie districts, owing doubtless to the past ravages of the 'bug.' As far as could be reported upon, the young crop was in fair condition."

The July bulletin said: "The pea crop of Ontario will probably be quite up to the average this year. On low-lying lands the rains drowned out the young peas, but on high and well-drained lands the crop has done very well; there has been a vigorous growth and prospects are very good. In the southwestern part of the province the acreage sown was less than formerly. Elsewhere it was larger, but so much has been destroyed in low lands that probably the average will be no greater than usual. The unanimous report of correspondents is 'Good in high lands, poor in low lands.' If the 'bug' does not do much damage the total pea crop of the province will be satisfactory."

The August bulletin contained the following: "This crop promises to be fair to good. The vines podded well, but the drouth has prevented the pods from filling perfectly. The 'bugs' are again reported as doing extensive damage in the West Midland and Lake Erie districts. In going over the entire province the crop appears to be somewhat uneven, very light in some places owing to drouth and rapid maturing; badly damaged by the pea bug in others, while in some townships it is excellent. On the whole the crop will be about up to the average. Harvesting had begun August 1st in a few places, was still in progress August 15th all over Ontario."

The November bulletin referred to peas as a fair crop, but damaged by bugs in western counties.

The acreage and yield are given by county groups and for the province in the following table:

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	56,849	855,479	15.0	59,382	873,754	14.7	61,277	1,104,530	18.0
Lake Huron	86,220	1,869,537	21.7	94,755	1,969,203	20.1	83,850	1,858,984	22.2
Georgian Bay	92,304	2,021,131	21.9	95,115	1,818,872	19.1	81,731	1,762,696	21.6
West Midland	137,858	2,638,971	19.1	154,982	2,734,472	17.6	139,204	2,946,599	21.2
Lake Ontario	206,953	3,947,510	19.1	198,524	4,027,254	20.3	162,202	3,261,100	20.1
St. Lawrence & Ottawa	78,736	1,316,929	16.7	92,334	1,474,026	16.0	91,519	1,772,447	19.4
East Midland	65,239	1,178,502	18.1	63,991	1,241,606	19.4	53,896	1,043,210	19.4
Northern Districts	14,582	340,896	23.4	15,649	355,243	22.7	9,912	229,597	23.2
Totals	738,741	14,168,955	19.2	774,732	14,494,430	18.7	683,591	13,979,163	20.4

There is a decrease of 35,991 acres in the area, although the Lake Ontario and East Midland groups show an enlarged acreage. The average yield per acre is 19.2 bushels, being .5 bushel more than in the previous year, but 1.2 bushels less than the average for the twelve years. The total yield of the province is slightly below that of 1892, but greater than the average total yield for 1882-93. In the Lake Ontario counties nearly four million bushels of peas are grown.

CORN.

The crop was thus described in the July bulletin: "In the southwestern part of the province, especially in Essex, Kent and Elgin, where corn is grown for the grain, an increased acreage is reported, and the condition on July 1st was from very good to excellent. Elsewhere corn is being grown principally for soiling and the silo. In Lake Huron and Georgian Bay districts the acreage was limited, the growth backward but improving rapidly. In the West Midland district the prospects were improving at the beginning of the month. In the Lake Ontario counties the condition was fair to good; in the eastern and northern counties the crop was quite late and just beginning to make good growth On the whole the crop was backward in starting but rapidly going ahead, and the prospects were exceedingly good on July 1st. There are many complaints from the western half of the province of poor seed."

The August bulletin had the following to say concerning corn : "This crop is cultivated in the Lake Erie district more extensively than in any other district, and is reported on the average to be very fair, though the drouth has affected it. In other districts what corn is grown is reported to be fair. Hill corn is excellent, while ensilage is not up to the mark."

The crop was thus dealt with in the November bulletin : "Corn has done as well as could be expected considering the extreme drouth. In the southwest the ears are short, but the kernel has turned out about the average. Corn for fodder is reported uneven owing to the variable rainfall."

The following table gives the acreage and yield of corn by county groups and for the province for 1892 and 1893, and the average for the twelve years 1882-93, the crop being also divided into that raised for husking and that grown for fodder and the silo :

Districts.	For husking.			For silo and fodder.			Total area.		
	Acres.	Bushels (in the ear)	Bushels per acre.	Acres.	Tons.	Tons per acre.	1893. acres.	1892. acres.	Average 1892-93. acres.
Lake Erie..... 1893	114,426	8,201,533	71.7	7,313	71,253	9.74	121,739	99,278	97,565
Lake Erie..... 1892	90,843	5,616,019	61.8	8,435	69,529	8.24			
Lake Huron... 1893	15,122	815,993	54.0	7,074	77,405	10.94	22,196	17,047	12,143
Lake Huron... 1892	10,606	610,018	57.5	6,441	70,436	10.94			
Georgian Bay . 1893	2,549	127,715	50.1	5,902	63,348	10.73	8,451	6,546	2,661
Georgian Bay . 1892	1,712	105,266	61.5	4,834	62,752	12.98			
West Midland. 1893	27,113	1,635,084	60.3	16,801	191,776	11.41	43,914	37,687	30,826
West Midland. 1892	19,927	1,277,179	64.1	17,760	182,372	10.27			
Lake Ontario.. 1893	26,342	1,474,688	56.0	19,407	213,144	10.98	45,749	45,718	33,053
Lake Ontario.. 1892	26,488	1,671,387	63.1	19,230	179,565	9.34			
St. Lawrence & Ottawa..... 1893	22,483	1,322,910	58.8	32,494	361,867	11.14	54,977	52,005	26,679
St. Lawrence & Ottawa..... 1892	23,560	1,426,673	60.6	28,445	320,267	11.26			
East Midland.. 1893	8,841	477,368	54.0	6,678	69,056	10.34	15,519	14,022	8,742
East Midland.. 1892	7,944	504,961	63.6	6,078	62,486	10.28			
Northern Dists. 1893	418	17,670	42.3	196	1,675	8.55	614	563	398
Northern Dists. 1892	383	17,995	47.0	180	1,500	8.33			
Totals..... 1893	217,294	14,072,961	64.8	95,865	1,049,524	10.95	313,159	272,866	212,067
Totals..... 1892	181,463	11,229,498	61.9	91,403	948,907	10.38			

The acreage devoted to corn continues to extend, the total area now reaching 313,159 acres. This is an increase of 40,293 acres compared with the preceding year, of which 35,831 is credited to corn grown for husking, and 4,462 acres for silo and fodder. The Lake Erie group furnishes over half the area of corn raised for husking, while the greatest acreage of corn for fodder and the silo is found in the St. Lawrence and Ottawa district. The average yield of corn in the ear was 71.7 bushels per acre in the Lake Erie counties and 64.8 bushels for the whole province. Fodder corn averaged 10.95 tons per acre for the province. In almost every respect the corn crop for 1893 appears to have improved upon the acreage and yield of the preceding year.

BUCKWHEAT.

More attention than usual has been given to this crop since the fall in the price of other grains. When correspondents wrote on July 1st buckwheat was still being sown, and owing to the failure of some of the earlier crops a larger area than usual was put in. The crop was then reported as coming along nicely. The November bulletin stated that buckwheat had turned out fair in the Lake Ontario counties, where the crop is chiefly raised; but actual returns place the yield lower than the remarks of correspondents would lead one to expect.

The acreage and yield by county groups and for the province are given in the next table :

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	14,317	235,098	16.4	15,217	288,391	19.0	11,259	207,792	18.5
Lake Huron	3,034	47,510	15.7	2,614	55,240	21.1	1,477	26,511	17.9
Georgian Bay	4,385	71,483	16.3	3,085	71,836	23.3	1,306	23,029	17.6
West Midland	2,586	49,981	19.3	3,562	66,315	18.6	2,505	45,304	18.1
Lake Ontario	58,016	1,041,737	18.0	48,638	1,009,593	20.8	24,222	488,619	20.2
St. Lawrence and Ottawa.	32,841	620,095	18.9	35,577	676,024	19.0	29,655	619,151	20.9
East Midland	17,683	296,927	16.8	15,346	327,268	21.3	8,171	161,516	19.8
Northern Districts	966	17,625	18.2	1,065	26,547	24.9	674	14,801	22.0
Totals	133,828	2,380,456	17.8	125,104	2,521,214	20.2	79,269	1,586,723	20.0

There is an increase in the acreage of buckwheat, but the gain is confined to four out of the eight groups. The average yield per acre, 17.8 bushels, is lower than usual, being 2.4 bushels less than in the previous year, and 2.2 bushels lower than the average for the twelve years. Buckwheat is not very generally grown outside of the Lake Ontario and St. Lawrence and Ottawa counties.

BEANS.

According to the July bulletin this crop, which is confined chiefly to Kent and a few other counties, was doing very well. It was also stated that the area did not seem to be smaller than usual.

The August bulletin thus referred to the crop : "The harvesting of the bean crop is being somewhat extended in time this year owing to the difficulty and delay in planting. Early planted has yielded an average quantity of good quality ; late planted will turn out below the average in both quantity and quality owing to the drouth. Reports indicate a largely increased acreage, and only a moderate yield on the whole."

The November bulletin summed up the situation in the following words : " Beans did only fairly well. The acreage is larger than expected, but the yield is low."

The following table shows the acreage and yield of beans by county groups and for the province :

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	38,586	502,261	13.0	25,369	388,731	15.3	20,398	335,903	16.5
Lake Huron	1,203	16,577	13.8	682	9,467	13.9	683	11,783	17.3
Georgian Bay	622	10,695	17.2	263	5,975	22.7	281	4,905	17.5
West Midland	1,386	17,869	12.9	812	15,385	18.9	1,168	18,673	16.0
Lake Ontario	2,275	35,979	15.8	1,953	35,401	18.1	2,139	38,470	18.0
St. Lawrence and Ottawa.	3,764	66,926	17.8	3,057	58,532	19.1	3,299	69,095	20.9
East Midland	835	10,889	13.0	956	19,665	20.6	611	10,571	17.3
Northern Districts	187	3,114	16.7	157	2,775	17.7	97	1,780	18.4
Totals	48,858	664,310	13.6	33,249	535,931	16.1	28,676	491,180	17.1

In the Lake Erie group, where most of the crop is grown, the area in beans has increased from 25,369 to 38,586 acres. The yield in that district, however, averages only 13.0 bushels per acre, compared with 15.3 in 1892, and an average of 16.5 bushels for the twelve years. The yields in the other groups this year lift the average for the province to 13.6 bushels per acre, but in these sections comparatively little is grown beyond home consumption.

HAY AND CLOVER.

This has turned out to be the most satisfactory crop of the year. The earliest reports were favorable. The April bulletin stated: "Unless all the signs fail, clover will enter the summer season in first-class condition. New fields have come through the winter with but little injury, except in low-lying and undrained places, and old fields have done better than usual. The crop was well protected during the winter, and the snow went off so nicely that there was only the barest mention of injury from smothering. In a few localities in Prince Edward, and also in Perth, there was considerable loss by winter-killing, but other reports from these counties were among the brightest received. There was very little 'heaving,' up to the time correspondents wrote, and while some feared that all danger from this source was not yet over, the bulk of reports was to the effect that the trying time was past, and that only an adverse summer would prevent an extra good crop of clover."

The June bulletin was equally encouraging: "Although meadows were regarded as being rather a little late as correspondents wrote, they were as a rule full of promise. A few fields were described as patchy, but the greater part of comments made upon the condition of the crop was of a hopeful and even enthusiastic nature, especially when alluding to new meadows. Should favorable weather continue the hay cut will be one of the best in recent years."

The July bulletin confirmed the hopes expressed in previous reports. It said: "Farmers were nicely into haying when returns came in. Fine weather—and the prospects for it were good—was the only thing required to ensure a first-class crop. There is an immense yield of clover on new fields, and old fields are well up to their average. Timothy, although not equal to clover, has also done well. The midge was mentioned by a Waterloo correspondent, but no one else complained of injury by insect enemies. It is too early to compute the average yield, but it will be unusually high."

Final reports regarding hay and clover warranted the following summary in the August bulletin: "The hay harvest began about the last week of June and ran on to the last week of July. The earliest cutting reported to us was on June 20th; on August 12th some hay was yet to be cut in Muskoka. Clover is by far the best crop of this season, timothy the second. Not a single report comes to us of less than one ton to the acre, very many give two tons to the acre, some give three and a few go over three up to four. The weather was on the whole very favorable, and the crop housed or stacked in fine condition. Some of the early cut was injured by rain; some of the latest cut was interfered with by the wheat harvest and matured too much. Farm help was short about the middle of July when hay and wheat harvesting were both in progress. A few sample comments may be given: 'could not be better;' 'the heaviest crop for many years;' 'never saw better;' 'secured in good condition;' 'best in twenty years;' 'in some places clover had to be drawn from the field it grew on to dry.' Although the 1892 crop was very large, that of 1893 is larger by 578,719 tons. The second crop of clover was practically a failure."

The acreage and yield, by county groups and for the province, is given in the following table:

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Tons.	Tons per acre.	Acres.	Tons.	Tons per acre.	Acres.	Tons.	Tons per acre.
Lake Erie	323,977	573,361	1.77	278,637	484,623	1.74	280,595	415,293	1.48
Lake Huron	311,186	537,185	1.73	285,802	512,063	1.79	247,779	355,617	1.44
Georgian Bay	242,862	409,014	1.68	223,318	379,498	1.70	200,769	271,714	1.35
West Midland	459,649	923,021	2.01	441,377	847,025	1.92	417,611	663,760	1.59
Lake Ontario	479,037	846,867	1.77	430,761	781,253	1.81	417,542	604,031	1.45
St. Lawrence & Ottawa	684,993	1,221,776	1.78	614,130	1,020,714	1.66	576,151	792,821	1.38
East Midland	193,587	331,345	1.71	174,078	250,712	1.44	160,815	200,104	1.24
Northern Districts	71,603	120,988	1.69	67,264	108,950	1.62	47,672	61,303	1.29
Totals	2,766,894	4,963.557	1.79	2,515,367	4,384,838	1.74	2,348,934	3,364,643	1.43

There has been an increase of 251,527 acres in the total area of hay and clover compared with the preceding year, 2,766,894 acres being given to the crop. The average yield per acre is 1.79 tons, which exceeds the good yield of 1892, while it is .36 ton greater than that of the twelve years. In the West Midland counties the yield averaged 2.01 tons to the acre. The largest acreage of hay and clover is found in the St. Lawrence and Ottawa counties, where dairying is one of the most popular branches of agriculture.

Clover Seed. Good fields of clover for seed were exceptional, although in Bruce and a few other counties correspondents are found who have good things to say of the crop. The drouth and grasshoppers did much injury to clover fields and the midge was active in nearly every county. With all these drawbacks the threshing of clover seed will not be large, although several correspondents speak of the seed as being of good quality. No reports of injury by frost are made. Alsike appears to be growing in favor.

FIELD ROOTS.

References to roots were few in the July bulletin, as most correspondents found the date rather early to give an opinion. Those who did report, however, stated that roots were getting a good start. The August bulletin stated that reports regarding roots were encouraging. They appeared to have had a good start, and in spite of the drouth complained of in many quarters gave good signs of yielding above the average. November reports were not so encouraging. Drouth and grasshoppers did much injury to turnips and carrots. As correspondents wrote, favorable weather for the storing of roots was prevailing.

Potatoes. The July bulletin contained the following: "The only thing apparently in the way of a splendid crop of potatoes is the presence of the Colorado beetle in immense numbers. The bugs are so thick this year as to excite great apprehension, but otherwise the tubers are making grand growth above and below ground, more particularly those planted early." The August bulletin reported: "Potatoes will only be up to the average, and probably not that. In several of the districts, particularly in the western part of the province, this crop has suffered from drouth, while in the other districts they are, as a rule, reported small and scraggy without any cause being assigned." The reports sent in under date of November 6th were thus summarized in the bulletin issued in that month. "Early potatoes suffered much from drouth, but those planted later did much

better. In western Ontario the crop is remarkably free from rot, although the tubers are on the whole smaller in size than usual. Odd reports of rot come from various localities in Eastern Ontario, whilst in Dundas, Stormont, Glengarry and Carleton rot has done a great deal of injury, the loss in some fields amounting to half the yield."

The following table gives the acreage and yield by county groups and for the province :

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	15,314	1,291,317	84.3	14,915	994,974	66.7	15,803	1,609,516	101.8
Lake Huron	10,616	872,322	82.2	11,895	943,917	79.4	12,579	1,416,204	112.6
Georgian Bay	13,245	1,294,104	97.7	13,687	1,242,619	90.8	13,749	1,714,654	124.7
West Midland	24,209	2,450,410	101.2	23,964	2,019,875	84.3	26,316	3,066,154	116.5
Lake Ontario	29,718	2,910,774	97.9	29,371	2,815,073	95.8	31,454	3,476,728	110.5
St. Lawrence & Ottawa	34,875	2,559,359	73.4	36,441	2,540,351	69.7	38,332	4,571,219	119.3
East Midland	10,955	1,112,785	101.6	11,274	1,121,153	99.4	12,129	1,468,717	121.1
Northern Districts	3,669	420,141	114.5	4,156	611,855	147.2	3,204	477,463	149.0
Totals	142,601	12,911,212	90.5	145,703	12,289,817	84.3	153,566	17,800,655	115.9

The acreage of potatoes does not equal the figures for 1892, although the Lake Erie, West Midland and Lake Ontario groups have each a larger area. None of the groups excepting the Northern Districts equals its own average acreage for the twelve years 1882-93. The average yield per acre for the province is greater than in 1892, but is 25.4 bushels short of the average for the twelve years. As usual, the new lands of the Northern Districts give the best average yield per acre of tubers, although even in that group there is a small return compared with previous average yields.

MANGEL-WURZELS. The earliest reference in the crop bulletins to mangel-wurzels was found in the July bulletin. It was there stated that they were coming up nicely, although one return from Brant reported some plowed up. August reports were reassuring, and notwithstanding the drouth a crop above the average was expected. The dry weather alluded to in the August bulletin continued for some time after correspondents reported. November reports were to the effect that while mangels suffered from the drouth the injury was not as much as might be expected, although the crop did not reach an average yield.

The following table shows by county groups and for the province the acreage and yield of mangel-wurzels :

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	1,650	702,864	426	1,695	681,194	402	1,425	575,384	404
Lake Huron	3,381	1,390,398	411	2,691	1,390,785	517	2,543	1,140,183	448
Georgian Bay	1,094	420,915	385	814	395,362	486	989	415,587	420
West Midland	6,875	2,788,581	406	6,702	3,068,005	458	6,498	2,967,021	457
Lake Ontario	5,056	2,071,992	410	5,855	2,889,080	493	5,200	2,316,085	445
St. Lawrence and Ottawa	1,655	574,493	347	2,108	802,748	381	1,780	674,437	379
East Midland	1,704	593,193	348	2,068	1,090,798	527	1,398	579,823	415
Northern Districts	104	40,132	386	93	32,502	349	84	24,313	289
Totals	21,519	8,582,568	399	22,026	10,350,474	470	19,917	8,692,833	436

The acreage falls a little short of that of last year, but the average yield is only 399 bushels compared with 470 bushels in 1892 and an average of 436 for the twelve years. There is a considerable increase in acreage in the Lake Huron counties, but none of the groups this year reach the average yield of the province for the twelve years.

CARROTS. Very little mention was made regarding carrots in the July bulletin. A month later the reports were to the effect that notwithstanding the drouth they had a good start and were doing well. The November bulletin stated that carrots had been attacked by grasshoppers and were injured by continued dry weather, but that in many instances a fair yield had been reported.

The table following shows the acreage and yield by county groups and for the province :

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	650	223,119	343	895	268,228	300	736	216,963	295
Lake Huron	1,066	333,677	313	844	333,552	395	993	351,012	353
Georgian Bay	827	277,344	335	955	375,491	393	1,071	391,069	365
West Midland	1,769	607,953	344	1,722	674,280	392	2,152	804,425	374
Lake Ontario	1,716	560,924	327	2,052	868,782	423	2,619	979,560	374
St. Lawrence and Ottawa	1,913	572,751	299	2,196	772,727	352	1,688	534,363	317
East Midland	1,013	307,763	304	938	419,651	447	848	288,347	340
Northern Districts	334	87,919	263	339	114,650	338	182	50,284	276
Totals	9,288	2,971,450	320	9,941	3,827,361	385	10,289	3,616,023	351

Carrots do not appear to be growing in popularity as a field crop. The total area is smaller than in the previous year, and is ten per cent. less than the average acreage for the years 1882-93. The average yield is 320 bushels per acre, being 65 bushels less than in 1892 and 31 bushels below the average yield for the twelve years. The West Midland group had the best average yield of the year, but it fails to reach the average of the province for the twelve years.

TURNIPS. The July bulletin thus summarized the condition of the crop on the 1st of that month : "Turnips were coming into leaf promisingly, and where the fly was named it was chiefly to note its absence up to the time of writing." The August reports were to the effect that notwithstanding drouth a good yield might be looked for. The dry weather continued for a considerable time after correspondents wrote, however, and the November returns had a change of tone regarding the crop. The bulletin for that month had the following: "Turnips suffered from drouth, the aphis and grasshoppers, and in many quarters, more especially in the west, will be small and 'rooty.' In most of the eastern counties a fair yield is reported."

The acreage and yield is given in the following table by county groups and for the province :

Districts.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.	Acres.	Bushels.	Bushels per acre.
Lake Erie	3,112	1,174,532	377	3,095	1,060,595	343	2,379	849,022	357
Lake Huron	16,976	6,145,398	362	16,253	8,623,849	531	13,443	5,540,744	412
Georgian Bay	18,483	6,704,713	363	16,097	7,612,242	473	13,388	5,574,152	416
West Midland	43,729	19,350,245	443	40,433	20,097,485	497	36,237	15,649,865	432
Lake Ontario	37,702	17,479,700	464	36,791	18,864,814	513	31,179	13,540,194	434
St. Lawrence and Ottawa	5,656	2,060,989	364	5.327	2,107,319	396	4,377	1,568,833	358
East Midland	8,734	3,390,877	388	8,859	4,194,882	474	6,364	2,400,122	377
Northern Districts	2,212	668,901	302	2,772	980,455	354	2,271	737,885	325
Totals	136,604	56,975,355	417	129,627	63,541,641	490	109,638	45,860,817	418

Unlike the other root crops, turnips have experienced an enlargement in total acreage, the increase being shared in by every group except the East Midland and the Northern Districts. The average yield per acre is 417 bushels, which, while greatly below that of the preceding year, is only one bushel less than the average for the twelve years. Considerably over half the turnip crop of the province is grown in the West Midland and Lake Ontario counties.

COMPARATIVE YIELD OF FIELD CROPS.

Aggregate Yield of Field Crops. In the table following the total yield of the field crops named is given for each of the past five years, together with the averages for the twelve years 1882-93 :

Field crops.	1893.	1892.	1891.	1890.	1889.	1882-93.
	bushels.	bushels.	bushels.	bushels.	bushels.	bushels.
Fall wheat	17,545,248	20,492,497	21,872,488	14,267,383	13,001,865	18,219,174
Spring wheat	4,186,063	8,290,395	10,711,538	7,683,905	5,697,707	8,442,203
Barley	9,806,088	12,274,318	16,141,904	15,600,169	23,386,388	17,964,493
Oats	58,584,529	64,758,053	75,009,542	52,768,207	64,346,301	58,954,051
Rye	994,771	1,132,504	1,134,630	1,563,345	1,431,679	1,579,949
Peas	14,168,955	14,494,430	18,323,459	15,389,313	13,509,237	13,979,163
Buckwheat	2,380,456	2,521,214	2,608,142	2,053,720	1,272,578	1,586,723
Beans	664,310	535,931	769,600	761,341	271,893	491,180
Potatoes	12,911,212	12,289,817	24,055,886	17,561,117	14,355,529	17,800,655
Mangel-wurzels	8,582,568	10,350,474	11,779,448	11,594,518	7,223,478	8,692,833
Carrots	2,971,450	3,827,361	3,814,016	4,210,542	3,431,959	3,616,023
Turnips	56,975,355	63,541,641	68,853,452	47,040,563	37,021,260	45,860,817
Corn for husking	14,072,961	11,229,498	.....	.....	.....	.....
	tons.	tons.	tons.	tons.	tons.	tons.
Corn for fodder	1,049,524	948,907	.....	.....	.....	.....
Hay and clover	4,963,557	4,384,838	2,392,798	4,305,815	3,728,313	3,364,643

Both acreage and yield vary each year, and the total yield is therefore an uncertain result. Of the fourteen crops comprising the table but four, namely, beans, potatoes, corn and hay and clover, show a greater acreage than in the year 1892. The year 1891 appears to be the best for general yield, although in that season hay and clover made its poorest showing. The aggregate yield of oats is almost three times that of wheat. The total yield of barley has fallen off more than one-half since 1889.

THE WORLD'S WHEAT CROP. The world's wheat crop for the last six years is given in the following table by continents :

Continent.	1893.	1892.	1891.	1890.	1889.	1888.
	bushels.	bushels.	bushels.	bushels.	bushels.	bushels.
Europe	1,429,500,000	1,367,900,000	1,205,700,000	1,361,600,000	1,216,000,000	1,385,000,000
America	623,500,000	690,800,000	787,100,000	517,300,000	569,000,000	504,000,000
Asia	319,000,000	278,900,000	363,700,000	305,600,000	310,000,000	338,000,000
Africa	36,200,000	38,500,000	47,100,000	49,400,000	37,000,000	41,000,000
Australasia	41,260,000	36,800,000	33,300,000	39,100,000	42,500,000	26,200,000
Total	2,449,460,000	2,412,900,000	2,436,900,000	2,273,000,000	2,174,500,000	2,294,200,000

There is a falling off in the yields of America and Africa compared with the previous year, but the world's total is 36,560,000 bushels greater than in 1892. The wheat crop of Europe is considerably more than that of the rest of the world combined.

AVERAGE YIELDS PER ACRE. The average yield of each of the staple field crops is given in the following table by county groups for 1893 and for the province for both 1892 and 1893, together with the average for the twelve years 1882-93. Corn is compared only with its figures for the previous year :

Field crops.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.		
									1893.	1892.	1882-93.
	bush.	bush.	bush.	bush.	bush.	bush.	bush.	bush.	bush.	bush.	bush.
Fall wheat	18.2	19.3	17.2	20.5	19.6	19.5	18.6	22.4	19.2	21.2	20.0
Spring wheat	11.5	11.7	12.5	13.2	10.0	13.2	9.7	15.9	11.7	12.7	15.2
Barley	19.9	21.5	23.5	23.1	20.2	19.6	18.5	21.7	21.0	24.6	25.7
Oats	28.1	31.5	31.9	33.7	30.8	26.8	27.8	29.9	30.3	34.8	34.6
Rye	14.8	14.4	14.6	16.1	13.6	15.1	14.5	15.7	14.5	15.5	16.1
Peas	15.0	21.7	21.9	19.1	19.1	16.7	18.1	23.4	19.2	18.7	20.4
Buckwheat	16.4	15.7	16.3	19.3	18.0	18.9	16.8	18.2	17.8	20.2	20.0
Beans	13.0	13.8	17.2	12.9	15.8	17.8	13.0	16.7	13.6	16.1	17.1
Potatoes	84 3	82.2	97.7	101.2	97.9	73.4	101.6	114.5	90.5	84.3	115.9
Mangel-wurzels	426.	411.	385.	406.	410.	347.	348.	386.	399.	470.	436.
Carrots	343.	313.	335.	344.	327.	299.	304.	263.	320.	385.	351.
Turnips	377.	362.	363.	443.	464.	364.	388.	302.	417.	490.	418.
Corn for husking	71.7	54.0	50.1	60.3	56.0	58.8	54.0	42.3	64.8	61.9	.....
	tons.	tons.	tons.	tons.	tons.	tons.	tons.	tons.	tons.	tons.	tons.
Corn for fodder	9.74	10.94	10.73	11.41	10.98	11.14	10.34	8.55	10.95	10.38	.....
Hay and clover	1.77	1.73	1.68	2.01	1.77	1.78	1.71	1.69	1.79	1.74	1.43

Hay and clover is the only crop exceeding its average for the twelve years. The best yields are divided amongst the county groups as follows : Lake Erie, mangels ; Georgian Bay, barley ; West Midland, oats, rye, buckwheat, carrots, hay and clover ; Lake Ontario, turnips ; St. Lawrence and Ottawa, beans ; Northern Districts, fall wheat, spring wheat, peas and potatoes.

ONTARIO VS. AMERICAN STATES. A comparison of the average yield per acre of cereals in Ontario and the principal grain-growing states of the American Union and of Manitoba is presented in the following table for the twelve years 1882-93.

—	1893.	1892.	1891.	1890.	1889.	1888.	1887.	1886.	1885.	1884.	1883.	1882.	1882-93
Fall wheat.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.
Ontario	**19.2**	**21.2**	**25.7**	**19.8**	**15.8**	**16.7**	**16.1**	**20.4**	**24.5**	**24.0**	**10.6**	**26.3**	**20.0**
New York....	14.5	16.2	16.6	14.5	13.8	14.1	15.2	16.3	15.4	16.5	10.3	15.7	14.9
Pennsylvania.	14.0	14.6	15.6	12.0	12.3	13.5	9.7	12.7	9.7	13.6	13.2	13.6	12.9
Ohio	14.5	13.6	17.1	12.5	14.6	10.8	13.1	15.0	10.2	15.3	10.0	15.1	13.5
Michigan	13.2	14.7	18.8	13.5	14.7	14.6	13.3	16.0	19.3	16.5	14.0	16.3	15.4
Indiana	14.1	14.7	18.1	11.2	14.7	10.4	13.5	14.8	10.6	12.5	10.4	16.5	13.5
Illinois	11.5	16.2	18.0	9.8	16.0	13.7	15.2	13.7	8.5	11.6	10.0	17.7	13.5
Missouri	9.5	12.5	13.6	11.0	13.0	12.0	16.2	13.2	7.4	11.8	10.1	11.8	11.8
Kansas	8.4	17.4	15.5	13.7	18.4	15 2	9.6	11.4	10.6	16.5	17.5	19.9	14.5
California	13.3	13.0	13.0	12.0	13.3	12.1	11.0	11.6	9.4	13.2	13.0	13.0	12.3
Spring wheat.													
Ontario	**11.7**	**12.7**	**21.0**	**12.8**	**14.3**	**17.5**	**11.6**	**16.5**	**11.4**	**20.2**	**16.6**	**16.5**	**15.2**
Manitoba	15.6	16.5	25.3	21.1	12.4	.....	27.7	15.0	20.8	21.8	21.8	.....	19.8
Wisconsin ...	13.3	11.5	13.5	12.2	14.2	11.5	10.3	11.5	11.5	14.0	12.3	14.4	12.5
Minnesota....	9.6	11.6	17.6	12.2	14.6	9.0	11.6	14.0	11.1	15.0	13.0	13.0	12.7
Iowa	11.5	11.5	15.3	11.3	13.1	9.8	10.0	12.2	11.3	12.0	11.3	10.3	11.6
Nebraska	8.7	12.5	15.0	10.8	12.0	9.3	10.1	11.0	11.3	14.5	15.5	11.0	11.8
Dakotas.....	9.1	12.3	16.8	9.6	9.4	9.7	14.3	11.5	12.8	14.5	16.0	15.9	12.7
Barley.													
Ontario.....	**21.0**	**24.6**	**29.2**	**22.2**	**26.7**	**26.1**	**22.3**	**26.5**	**27.7**	**27.3**	**24.3**	**28.6**	**25.7**
Manitoba	22.1	29.0	35.6	32.1	13.6	.....	36.3	15.7	29.0	32.4	26.5	.....	27.2
New York....	20.3	22.2	23.3	16.7	21.1	21.8	20.3	22.0	22.0	22 5	24.2	24.8	21.8
Wisconsin ...	24.0	25.5	26.5	22.7	24.5	22.5	18.5	22.0	26.5	23.2	24.1	25.0	23.7
Minnesota....	22.1	24.9	27.3	22.5	25.6	18.5	19.0	22.0	23.8	24.2	22.9	23.3	23.0
Iowa	22.6	21.1	27.3	22.6	22.4	21.0	19.0	22.5	23.0	22.3	21.9	22.6	22.3
Nebraska	12.0	22.2	27.2	17.3	22.7	22.5	21.0	22.0	23.4	21.0	22.1	23.0	21.4
California	22.5	24.0	23.7	22·3	20.3	20.0	20.5	22.2	18.1	23.6	16.2	16.4	20.8
Oats.													
Ontario.....	**30.3**	**34.8**	**40.8**	**28.0**	**33.5**	**35.4**	**29.6**	**36.2**	**35.8**	**38.9**	**38.5**	**36.4**	**34.6**
Manitoba	25.3	35.0	48.3	41.3	16.8	.....	46.2	20.9	40.5	40.0	36.0	.....	35.0
New York ...	24.0	28.0	31.5	17.8	24.5	28.1	23.5	28.7	27.9	30.0	31.3	29.9	27.1
Pennsylvania.	26.8	25.2	27.2	17.2	26.2	26.5	25.5	28.7	26.3	27.9	30.6	27.3	26.3
Ohio	28.6	26.3	31.3	18.0	32.3	31.8	30.0	32.4	37.3	28.0	33.9	26.4	29.7
Michigan	26.0	28.7	32.5	26.6	33.7	33.2	29.6	29.5	35.4	33.4	34.6	31.7	31.2
Indiana	27.5	26.5	23.5	17.5	27.7	26.5	27.0	30.7	26.8	30.0	29.7	26.8	26.7
Illinois	27.2	26.3	36.2	21.0	37.5	35.8	29.5	31.8	32.8	32.8	36.1	40.7	32.3
Wisconsin ...	27.6	30.2	33.3	26.0	35.5	29.4	24.2	28.4	33.8	33.5	30.4	29.6	30.2
Minnesota....	24.8	27.3	36.5	25.6	28.0	28.7	30.0	34.4	34.9	35.2	33.1	35.7	31.1
Iowa	24.8	25.4	36.7	25.8	34.5	26.2	30.5	34.1	33.8	36.7	34.1	31.0	31.1
Missouri	23.4	20.0	23.8	17.4	25.5	25.2	29.3	23.4	22.3	26.7	28.7	30.1	24.7
Kansas	18.4	28.5	30.0	24.0	31.5	25.3	26.6	26.4	31.8	35.0	39.4	27.0	28.6
Nebraska.....	15.0	26.7	35.5	21.3	31.6	25.8	27.5	29.5	34.3	33.7	40.0	23.5	28.7

RATIOS OF AGGREGATE CROPS. In the next table the ratio of yield of each crop is given by county groups and for the province, 100 representing the average of the province for the twelve years 1882-93 :

Districts.	Fall wheat.	Spring wheat.	Barley.	Oats.	Rye.	Peas.	Buckwheat.	Beans.	Potatoes.	Mangel-wurzels.	Carrots.	Turnips.	Hay and clover.
Lake Erie	104	20	64	87	73	77	113	150	80	122	103	138	138
Lake Huron	93	37	54	105	56	101	179	141	62	122	95	111	151
Georgian Bay	75	46	72	119	73	115	310	218	75	101	71	120	151
West Midland	99	54	64	103	92	90	110	96	80	94	76	124	139
Lake Ontario	99	39	51	97	66	121	213	94	84	89	57	129	140
St. Lawrence and Ottawa	74	68	45	88	52	74	100	97	56	85	107	131	154
East Midland	77	48	42	107	62	113	184	103	76	102	107	141	166
Northern Districts	121	71	141	140	84	148	119	175	88	165	175	91	197
The Province	96	50	55	99	63	101	150	135	73	99	82	124	148

In this table also both acreage and yield affect the result. Peas, buckwheat, beans, turnips and hay and clover are the only crops which go over 100. In the case of buckwheat every district goes over the standard, and all but one with turnips. In spring wheat, barley, rye and potatoes, not a single district reaches 100 ; in fact the first named crop averages but 50 for the province.

RATIOS OF YIELD PER ACRE. In the table following the average yield per acre in 1893 is compared with that for 1882-93, the average for the twelve years being represented by 100 :

Districts.	Fall wheat.	Spring wheat.	Barley.	Oats.	Rye.	Peas.	Buckwheat.	Beans.	Potatoes.	Mangel-wurzels.	Carrots.	Turnips.	Hay and clover.
Lake Erie	96	80	82	81	95	83	89	79	83	105	116	106	120
Lake Huron	97	82	82	90	82	98	88	80	73	92	89	88	120
Georgian Bay	84	86	92	96	83	101	93	98	78	92	92	87	124
West Midland	99	87	83	89	97	90	107	81	87	89	92	103	126
Lake Ontario	96	65	79	85	93	95	89	88	89	92	87	107	122
St. Lawrence and Ottawa	107	80	82	83	85	86	90	85	62	92	94	102	129
East Midland	96	69	78	89	94	93	85	75	84	84	89	103	138
Northern Districts	110	90	92	96	82	101	83	91	77	134	95	93	131
The Province	96	77	82	88	90	94	89	80	78	92	91	100	125

In the figures for the province hay marks 125 and turnips touch 100 exactly, but no other crop reaches the standard. Spring wheat, barley, peas, oats, rye, beans and potatoes do not reach 100 in any group, while hay and clover goes well over that figure in every district.

FRUIT AND FRUIT TREES.

The following is taken from the June bulletin: "Vegetation was rather backward at the beginning of the month, but the pleasant weather of the first week of June was sending things forward with a rush. Fruit trees were well advanced in blossom in most sections, and in some of the early localities the young fruit was beginning to set. The promise for apples is not as great as usual, more particularly in the western half of the province, as the blossoming has been comparatively light, especially among the winter sorts. Pears were more profuse in bloom. Peaches came through the winter with but little hurt, and made an excellent show of blossom. Plums appear to have suffered more than any other fruit; a large number of trees have died in the counties of Grey and Simcoe during the winter. Cherries, where they have escaped the black-knot, are likely to yield well. Grapes have experienced but little injury from winter-killing, and start the season with good prospects. Raspberries, where not laid down, were somewhat injured by the heavy snow, yet taken altogether the reports regarding small fruits are encouraging."

The August bulletin contained the following touching fruit: "The reports indicate that apples are a complete failure throughout the province. Very few schedules give one-third of a crop, while in the majority of instances the answer to the question is either 'complete failure' or 'none.' In the Lake Erie district grapes appear to be exceptionally fine, while pears and berries are above the average. In the Lake Huron district berries are good, and cherries and grapes fair. In the Georgian Bay district, cherries are a fine crop in Grey, while in Simcoe the berries are excellent and grapes fair. The St. Lawrence and Ottawa, East Midland and Northern Districts do not report favorable on anything but berries."

The November bulletin thus summarized the condition of orchard and fruit garden: "The August bulletin did not speak cheerfully regarding the prospective apple crop and reports to hand are confirmatory. The codling moth has done much injury and so have the scab and drouth, hence a considerable quantity of the unusually light yield of apples are wormy, spotted and small. A surplus is reported in some localities, but as a rule there is little more than the local supply, and sometimes not that. Pears have done much better than apples and so have peaches. Where the curculio was taken in hand plums did well and so did cherries where the black-knot had not obtained possession; but unless more radical measures are taken to fight this last named enemy our cherries will soon be found in the horticultural records only. Small fruits yielded well. There has been an abundance of grapes and of excellent quality. A Simcoe correspondent avers that grasshoppers stripped the leaves off young apple trees. A hail storm did much damage to orchard and garden in the counties of Wentworth, Halton, York and Ontario, and in some other counties in the eastern part of the province fruit trees were blown over by high winds. However, the bulk of correspondents speak well of the present condition of fruit trees, except cherries, which are largely the victims of black-knot."

The following table gives the areas in orchard and garden for each of the five years 1889-93, together with the ratio for 1,000 cleared in 1893, by county groups and for the province:

Year.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
1893.....	42,014	22,433	13,278	39,293	58,715	13,156	8,962	1,109	199,060
1892.....	42,412	22,815	12,351	38,598	56,275	11,686	9,416	545	194,098
1891.....	40,802	22,167	11,858	37,704	53,267	12,011	9,130	893	187,832
1890.....	39,517	21,600	11,858	37,338	52,438	11,098	8,330	617	182,796
1889.....	39,699	21,105	11,729	37,256	52,242	12,079	8,130	526	182,766
Rate per 1,000 acres cleared, 1893.....	28.5	16.1	12.1	16.7	25.0	5.5	10.2	6.2	16.4

The rural area in orchard and garden is now 199,060 acres, being an increase of 4,962 acres over that of 1892. There is a shrinkage, however, in acreage in the Lake Erie, Lake Huron and East Midland groups. Out of every 1,000 acres cleared in the province 16.4 are in orchard and garden. In the Lake Erie counties the ratio reached 28.5, while in the East Midland group the figures are 10.2, and in the Northern Districts 6.2.

FARM SUPPLIES.

The April bulletin had the following: "Although hay was freely fed during the winter, a considerable quantity is still on hand, low prices having discouraged sales. The reports concerning the supply of oats are more variable. In the Lake Erie counties there was not a large surplus, and in the beefing and dairying counties of Middlesex and Oxford there was rather a scarcity, but elsewhere a fair amount is reported on hand, although much more was being consumed on the farm than usual. There appears to be a good deal of wheat still in the hands of farmers, and a few correspondents speak of some of the yield of 1891 as still being in the bin. Owing to the relatively high prices offered for hogs, a considerable quantity of wheat and other grain was turned into pork, and more will be fed on the farm should the prices of cereals not go up. Fat cattle appear to have had good sale, and although a fair supply is still left, May shipments are expected to call for all that can be offered."

FALL PLOWING.

The following reference to fall plowing appeared in the November bulletin: "Owing to fine open weather fall plowing is well advanced. The dry season rendered plowing difficult on stiff clay, but on good loamy land a large area has been gone over. In fact, a few correspondents report fall plowing completed, and in several instances it is said that the land has been plowed twice to kill weeds. On the other hand some are only nicely started, having used the fine weather to attend to other farm work. It would seem as if more land than usual is being plowed this fall. As correspondents wrote capital plowing weather prevailed."

THRESHING AND MARKETING.

Threshing was practically completed when correspondents wrote except in the more eastern counties of the St. Lawrence and Ottawa group. Marketing was scarcely as forward as usual. Those who were in a position to hold back have done so, but of course a considerable number have had to dispose of their grain at current prices. More wheat will be fed to live stock than for many years past. Barley also is being largely fed on the farm and a large supply is in farmers' hands in the Lake Ontario counties. Oats are being ordinarily handled, but peas have been sold early and steadily.

FARM IMPROVEMENTS.

Correspondents report that the benefits of draining are becoming more widely recognized, and the area of drained lands is being steadily increased. The western part of the province appears to be making greater progress than the eastern, and the southwestern and West Midland counties lead all others. The farmers do their own digging, and in many cases hire experts to "bottom" and to lay the tile. Tile is reported available in

nearly every locality. The supply of experts also appears equal to the demand, and a few not flattering comments appear as to self-styled experts. Ditching machines are almost entirely out of use. The old zigzag or snake-rail fences continue to give way to barbed-wire, woven-wire and various patent straight-rail fences. A few report experiments with hedges, especially the locust, but the comments are not very favorable. Here and there new barns are reported ; but the general move appears to be in the raising of the old barns and the putting of stone basements underneath. The following report recurs again and again : "The improvements are quite as good as could be expected considering the low prices and the hard times."

GENERAL REMARKS.

From the April Reports.

Gosfield, N., Essex : Those who had their land tile drained had good crops despite the excessive rainfall, while their neighbors beside them whose fields were not tile drained had no more than their seed.

Gosfield, S., Essex : The people are waking up to the importance of underdraining. In fact it is astonishing to compare the amount of tile that is going in this spring with what has been put in in former years. Dollars and cents spoke louder last year than arguments upon lands underdrained, and lands not underdrained barely produced enough to pay the taxes—that is on black clay, muck, and swampy and quicksand bottoms.

Harwich, Kent : Farmers are pasturing more land and going more into stock, and feeding the produce of the land at home. By so doing they are raising more grain to the acre than they used to do, and of better quality. They are reclaiming the low-lying portions of their land by tiling, and are giving a more general cultivation.

Raleigh, Kent : Owing to the continued low prices of wheat, farmers are turning their attention to other lines of production, and there is a tendency to increase the number of milch cows and of hogs kept on the farm, and to sow more coarse grains to be used for feed. The government is doing a good work by the instruction in the lines of advanced agriculture given through the medium of the travelling dairies, dairy schools, farmers' institutes, etc. The better class of farmers appreciate the efforts thus made on their behalf, and are beginning to "catch on," and use the hints thus given to render their calling more remunerative.

Moulton, Haldimand : Farmers as a rule do their work more thoroughly than they did a few years ago. The disc harrow is doing good work.

Walpole, Haldimand : A great many farmers are doing without hiring help this year as wages are high, and at the present price of grain it does not pay to hire help. There is a tendency to go more into fat stock.

Wainfleet, Welland : Stock feeding is carried on along old lines, but a few are adopting the silo with good results.

Moore, Lambton : Extensive drainage operations are being carried on by municipalities in these western counties, and by the farmers in tile draining their farms. The conviction is forced upon them that nothing pays better than drainage, inasmuch as in many cases the best of their land is comparatively useless without drains.

Sombra, Lambton : Alsike clover has generally been sown for seed, and it is growing into general favor, more and more being sown each succeeding spring. It is crowding out red clover, being found quite suitable for hay sown with timothy, as they are fit to sow at about the same time, and stock appear to like it and do well upon it. Bees make a lot of honey from the alsike blossoms.

Ashfield, Huron : There are more going into keeping cows and sending milk to the cheese factories, and raising roots and corn fodder.

Wawanosh, E., Huron : The feeding of cattle is carried on extensively. Hay, turnips, peas and oats are generally used to put on flesh, but on account of the cheapness of wheat this year much wheat is ground for feeding pigs and cattle, because it pays best. There is now less plowing and more in grass, for cattle are now paying better than grain raising.

Keppel, Grey : I think there is not nearly enough attention given to the manure pile. How often it is left lying to waste. The pile should be kept in good shape with plenty of swamp muck or plenty of straw mixed with it, and then put on the field as soon as possible. Manure is money and it does not draw money in the heap.

Sullivan, Grey : Creameries are in favor here. This township will be drained of its surplus cream by four factories this season. If the farmers wish to make them pay they will have to get good cows and feed them well. Soiling is nearly unknown here, but it will not be for long if the creameries succeed.

Sunnidale, Simcoe : There is quite a change in agricultural methods. A great deal more is seeded down for hay than formerly, and there are more roots and fodder corn raised. More stock of all kinds are being fattened. Farmers are also providing warmer quarters for their stock in winter, which was greatly needed in order to make stock raising profitable.

Vespra, Simcoe : A cheese factory was in operation last year and we expect it will be running next month. Many of us are agitating for sweet whey and the Babcock tester, so that the rich milk may receive its equivalent in the contest with milk of poorer quality.

Dorchester, N., Middlesex : Considerable improvement is being done in the way of draining. I pent about $50 in underdraining eight acres, and I am satisfied it more than paid in the first crop.

Oakland, Brant: The class of English boys sent out by the "Homes," appear to be a very undesirable class of help as a rule.

Guelph, Wellington: More corn is being grown for winter feeding, and additional stock can with this be well wintered.

Clinton, Lincoln: What we want and are getting for insect foes of fruit are spray pumps. Horticulturists are seeing the necessity of it more every year, and the Agricultural College did a praiseworthy act when Prof. Panton's bulletin on Insect Foes was printed and gratuitously distributed to us. At our Farmers' Institute meeting the Professor gave us an illustrated lecture, some of the views showing the process of the fertilization of flowers.

Gainsborough, Lincoln: I think the appointment of inspectors under the Noxious Weeds and Diseases of Fruit Trees Acts should be made compulsory upon township councils. The council of this township did not make an appointment even after a large petition had been laid before them.

Nelson, Halton: The silo is coming slowly but surely, and, I think, coming to stay. The production of wheat in Ontario is not a paying business; but the production of cheese, butter and pork—and they might go together—might be increased indefinitely and find an ample market in Great Britain. Our butter, if made in factories in the winter season, might be placed on the British market in ten days or two weeks, and if properly made and shipped in suitable packages should compare favorably with Danish, Irish or any other butter. Our pork also, the product of our dairy offal and coarse cereals, should be equal to the best, and superior to the American corn-fed article.

Albion, Peel: If the assisted pauper immigration from the slums of large European cities is not stopped, the fate of Canada will be sealed before another quarter of a century expires. The truth of this statement is more apparent to farmers among whom these waifs are distributed than it can possibly be to any one else.

Chinguacousy, Peel: The use of corn fodder is becoming more general and this year there will be a very great breadth of it sown. A few silos are used and several more will be built this summer.

Etobicoke, York: The methods of feeding are principally in the old style. Some cut the straw and put some crushed grain on it, which appears to answer very well. Others grow some corn and feed it. The cattle are very fond of it, and it appears to make a good feed. As a rule farmers feed a great deal more hay than formerly.

Markham, York: "Beefing" cattle is slowly on the increase here. Hay, straw, roots and meal are usually fed. Three silos (the first in the neighborhood) were put up last year with very satisfactory results.

Brock, Ontario; There is only one silo in the township and the owner reports in favor of it. He used to feed turnips until last winter.

Darlington, Durham: There are only a few silos in this township, but most of those in operation are giving good satisfaction. A great many farmers grow fodder corn and dry it, storing it in lofts, and cutting it along with hay and straw during the winter. Some feed hay entirely, others feed hay and roots.

Hillier, Prince Edward: There is very little change in the manner of farming from ten years ago, except that farmers have dropped barley as a cash crop and are sowing peas instead. A large number are turning their attention to fancy peas, some farmers sowing as high as 150 bushels for a seed firm. More cows are also being kept.

Hallowell, Prince Edward: The supply of help for both house and farm is very limited. The large increase in the acreage of hops and hoed crops for canning factories uses more men, while the women prefer the factories and seed stores to domestic service.

Amherst Island, Lennox and Addington: Most of our farmers are giving up sowing the large amount of grain, and are seeding down more to clover and timothy and keeping more cows for dairy purposes.

Richmond, Lennox and Addington: A gradual change is taking place in the methods of feeding. Stock is receiving more liberal rations. The silo has not yet come into general use, being only resorted to as an economical food factor in a few individual cases. Corn fodder cured in the shock is, however, practised in very many instances. With due allowance for the severe agricultural depression farmers are advancing in the direction of more progressive methods.

Storrington, Frontenac: The dairy business appears to be the best paying business connected with farming, and we are into it pretty extensively here.

Bastard, Leeds: Methods of farming have improved of late. More cows are fed grain than formerly. Many silos were built last season. The only persons we have heard speak disparagingly of silos are the farmers who have not got them.

Cornwall, Stormont: A few years ago but few cattle were kept, and hay and grain were nearly all sold off the farm. Farmers now feed most of their produce to their cattle, and the change is a great improvement.

Caledonia, Prescott: A few have built silos, but the great majority will not incur the expense, preferring to grow corn to feed dry as a supplement to other fodder. Winter dairying is not in much favor. We find that our cows require at least three months' rest in order to give the best results at cheese factory time.

Osgoode, Carleton: The produce of the "sugar bush," as we call it, is very considerable. The manufacture of that delicious article of food, maple syrup, is brought to great perfection in Eastern Ontario, and is very profitable.

Drummond, Lanark: Cheese-making is the principal industry in this section. I do not think that cheese-making and stock raising are a good combination, as good stock cannot be made out of whey-fed calves. I believe that stock are degenerating since cheese factories were started, at least in size and appearance. Of course there will be some exceptions. Corn growing is becoming general here for cattle feed, and silos are on the increase.

Dummer, Peterborough: With reference to a change in agricultural methods, that becomes a necessity. We can no longer grow any kind of grain to sell at a clear profit, and our only safety is in growing coarse

grains and feeding them on the farm to cattle, hogs, sheep, poultry, etc. In short, we must sell more on *foot* and in the *box* than in the *bag*. Our cattle should be "finished" in this country. If they can be bought and fed by the Scotch farmer profitably, what is the reason the farmers of Canada cannot do the same? I think the farmers of this country try to till too much land.

From the June Reports.

Tilbury, N., Essex: We are troubled greatly with dogs worrying our sheep. Some farmers will not keep sheep on that account, as they are frequently killed in the barnyard. There should be a more stringent law to prohibit dogs irom running at large, especially at night. The fact is, it is either dogs or sheep. We can't have both and prosper in sheep raising.

Harwich, Kent: Farmers have been underdraining large portions of their farms, and reclaiming portions of low lying lands that previously were only waste places for weeds and bushes to grow in, and by so doing they are making their farms much more profitable. The benefits received from tile draining generally pays for the expense of the outlay in the second year.

Aldborough, Elgin: A lamentable state of affairs exists in this township in cherry orchards, owing to the prevalence of black-knot. Through carelessness on the part of many farmers this disease is being allowed to spread, and is fast rendering useless what might be the source of a very handsome addition to the revenue of the ordinary farmer. Farmers, as a class, are unwilling to use legal measures to compel their neighbors to remove black-knot, and so the destruction of our cherry trees goes on in a wholesale way.

Malahide, Elgin: Some small farmers are cultivating small fruits, setting out acres of berry bushes for the local markets.

Malahide, Elgin: Farmers are somewhat discouraged in trying to raise wheat and coarse grains for sale owing to the low price. Many are paying more attention to the dairy and hog raising. Hundreds of bushels of good wheat are now fed to hogs, fitting them for the spring and summer markets.

Cayuga, N., Haldimand: I am sorry to say that weeds hitherto unknown in this county, such as false-flax, etc., are becoming troublesome, and the law requiring destruction of black-knot on the plum and cherry trees is nearly a dead letter. Some official should be appointed in every county to see that the law was reasonably carried out.

Plympton, Lambton: The Travelling Dairy, which finished Lambton yesterday, has created a lively interest in butter-making, and I think the outcome of such an enterprise will be a much better class of butter. An impetus will be given to dairying which may lead to a greater breadth of corn being raised in future.

Grey, Huron: A good deal of flax has been sown in this township. The mill owners pay $10 per acre for good clean land, the farmer doing the plowing and dragging, or $10 per ton for the flax at the mill.

Stanley, Huron: Farmers are seeing more and more the importance of drainage, and a considerable number of drains are being put in. There is a plentiful supply of good tile.

Brant, Bruce: Some fields of rape are grown here for the purpose of feeding lambs for the Buffalo market. The land is prepared similarly as for turnips, and sown the last days of June or the first week of July.

Biddulph, Middlesex: Considerable underdrainage is going on all through this section for the past two years, and still continues to flourish. As many as thirty teams can be seen at one time at the tile yards, and some days many are compelled to return without tile.

Ekfrid, Middlesex: I think one subject demanding and deserving the attention of the agriculturist to-day is, better roads. I think our present system of making and repairing our roads by our old-fashioned plan of statute labor is faulty. When it was first adopted it might have been the only practicable plan available, but our circumstances now being changed we require a more modern system. Our statute labor tax should be commuted, and the money raised should be applied in public competition under the superintendence and inspection of a competent officer appointed for that purpose, and not shifted from year to year to different men who differ so widely in their ideas of road engineering as to make the business perfectly ludicrous if it were not so serious.

Grimsby, S., Lincoln: The Government ought to devise some plan whereby the present system of road-making be changed by an act direct from headquarters. A great necessity exists in the country for better roads, and better farming would follow. I consider this a live agricultural subject.

Nelson, Halton: I have planted 3,000 plum trees, and careful examination shows them to be in good condition. Some of my neighbors are planting largely also.

Markham, York: The farmers in this locality got up a co-operative creamery last fall, put up a building, put in machinery in the winter, and commenced making butter the first week in May. So far they are well pleased with the result. They are making a pound of butter out of about 22½ pounds of milk. The milk is tested with a Babcock tester. The tests show that the fat ranges from 2.8 to 5 per cent.

Haldimand, Northumberland: I believe dairying is the most profitable part of the farm at present, and is likely to continue so in the future. I notice that farmers who are devoting their time and attention chiefly to dairying are the only ones who are thriving in this part of the country.

Athol, Prince Edward: Tomatoes are extensively grown here for canning factories. They are now being planted in a very promising condition.

Sophiasburg, Prince Edward: Many farmers are growing buckwheat now, as it is one of the best crops for improving the land, and pays as well as most any kind of grain.

Hawkesbury, E., Prescott: Farmers in this township are planting large areas of fodder corn this season. A number of silos have been erected since last season. Some also feed corn dry to cattle during the winter.

Plantagenet, S., Prescott: Hops are becoming an important item of industry in some parts of this township on soil suitable for their growth. They appears to have wintered well.

Nepean, Carleton: The hornfly has already appeared, and promises to be as expensive a pest as the Colorado potato beetle.

Morrison, Muskoka: Hop-raising is a good investment where carried on intelligently. One farmer in a neighboring township who makes a business of it in connection with his farm finds it profitable on the average, although the fluctuations of prices make it a rather risky product so far as the market is concerned.

Watt, Muskoka: It would not be amiss if our experimentalists at Guelph and Ottawa were to give the artichoke a little attention, to ascertain its value as a fodder crop for the silo. Should the plant prove of sufficient value as food as to make it worth while to put it in the silo it would be a crop cheaply grown, as a plot once planted would be permanent. After cutting in fall the hogs could be turned in to grub up the roots and fatten, and they would leave enough for another crop without further labor.

From the July Reports.

Zone, Kent: We are sowing white turnips among the corn for fall pasture for sheep, and will sow rape as a catch crop as soon as we get off the rye and wheat. We find the corn and rape to be of great benefit for fall pasture for lambs.

Goderich, Huron: I never saw the potato bugs so numerous. I find that some of our neighbors who did not attend to them in time had the whole eaten off in a very short time by the beetles, a thing I never knew the beetles to do before. They didn't leave anything for the larvæ to eat, even if they laid the eggs. In some cases they even ate the potatoes off before they came above ground.

Turnberry, Huron: Very large quantities of old hay are being baled and shipped to European countries, but on account of the low price paid ($7 per ton) a large amount of old hay will not be sold unless the price should largely increase. A large amount of flax is grown in this county but none in this township.

Dorchester N., Middlesex: A neighbor of mine put in two acres of barley about the beginning of April, and after sowing storms of frost and snow came. The man got laughed at and was told by many that he had lost his seed and labor, but to-day I do not know of any barley looking so well. It has headed out early, and better than I have seen for several years.

Guelph, Wellington: A very large breadth of rape is or will be sown for the purpose of feeding lambs for the American markets. There is also a great increase in the creamery business as compared with former years.

Binbrook, Wentworth: Our greatest lack in this township is the want of sufficient help on the farm—men who really understand farm work in the line of stock-raising. It seems almost next to impossible to get persons who can take care of and handle our animals to our satisfaction.

Nelson, Halton: It may be of interest to know that the Burlington Horticultural Society is sending some very choice fresh fruit to Chicago. We have sent two cases of splendid apples this week, and two cases of strawberries. We expect to send about one case each day of the various fruits in their season until the middle of October. We have 150 varieties of open air roses we intend sending, thinking they will contribute very much to the appearance of our fruit exhibit.

Mara, Ontario: Farmers are going more into dairying and raising pigs and sheep, and with considerable success, only the neighbor's dog keeps the sheep from increasing.

Sophiasburg, Prince Edward: Hops are extensively cultivated, and are generally in a healthy condition.

From the August Reports.

Sydenham, Grey: The following is from a local paper published in an adjoining township: "Our attention was drawn last Tuesday to an unusual occurrence in the manner of the visitation of grasshoppers. These voracious insects generally 'drop in on us' from the ethereal above, but those of last Tuesday, which numbered millions, were washed in by the gentle waves of the Georgian Bay, from where, goodness only knows. They formed a deep fringe from the wharf along the bay shore west, as far as one could see, and were in a more or less dilapidated condition after their water voyage. At first appearance they all seemed to be dead, but the warm sun of yesterday, shining on the white gravel, brought thousands of them to life, although few had gained the usual grasshopper sprightliness. If only one-tenth of the hoppers along the beach, now in various stages of convalescence, get entirely well, we may prepare for an inevitable plague of locusts."

Vespra, Simcoe: We have a plague of grasshoppers this year such as was never known before, and it is impossible at present to estimate the amount of damage done by them. Whole fields of turnips and oats have been destroyed, and they are invading the gardens and eating up cabbages, carrots, beets, etc. The way they operate on the oats is this: They crawl up on the heads, mostly at night, and eat off the little stems, letting the grain drop to the ground. Some are cutting their oats green for fodder in order to save them from total loss. What appears to be a parasite, in the shape a red louse which lays its eggs on their backs under the wings, has attacked them. The egg produces a small maggot which eats its way into the body of the grasshopper and eventually kills it. This is the theory arrived at from observation so far, and it remains to be seen how far it is true from later developments.

Cameron and Campbell, Algoma: The number of sheep has increased wonderfully during the last two seasons.

From the November Reports.

Harwich, Kent: Some millet is grown here and a good deal of sorghum in a small way; that is to say, a good many farmers grow a small piece for their own use. We have good machinery here for pressing and evaporating it, and during the fall months these presses and evaporators are kept busy night and day.

Raleigh, Kent: Quinces were a heavy crop along the lake shore this year. About 100 barrels found a market in Detroit, and about the same quantity is yet unsold. Along the shore in Essex and Kent appears to be their home, as well as it is for the grape.

Bertie, Welland: Farmers do not give sufficient attention to a proper system of saving and using manure. The general farmer sells all his wheat and a large portion of his hay. At least two-thirds of what is raised on the farm is sold, and the small balance used is so fed and cattle and stock so treated that at least 50 per cent. of all manure made is wasted by stock running at large, and when in the barnyard not half of the manure dropped is on the manure pile, but in some fence corner or such like place. If this state of affairs keeps on I will not be surprised if in a few years a majority of the farmers will be forced to leave their farms, unable to subsist thereon, and will be starved into some more humble occupation. I hope to be an exception, as I am drawing manure from Buffalo with two teams at all spare odd times, having drawn 400 loads since last January. My barnyard is all covered over with a good roof, and all manure made under it is in good heart and effectual in enriching the soil.

Sombra, Lambton: The Farmers' Institute is increasing in membership as its merits are becoming better known. The literature sent out from the Department is well received—sometimes really highly prized. The lectures of the deputation were most excellent, and the wish is now that the lecturers could visit every township each year.

Hullett, Huron: The system of depending entirely upon pasture for stock in summer must be given up if farmers are to be successful. Feed of some kind must be raised, when pastures give out from dry weather or other causes such as grasshoppers, which the past summer ate up everything green on many pasture fields in Ontario to such an extent that many of the creameries and cheese factories had to shut down on account of the shrinkage in milk caused by the want of food. If farmers with six or eight cows had sown one or two acres of corn, and had it to cut and feed to their cows, it would have kept up the flow of milk, and would have enabled the factories to have continued a month or more longer just at the time when the best prices are obtained from a given quantity of milk. If fewer cows were kept, and those kept were better fed, it would pay better than the present system.

Keppel, Grey: I think there is a great waste of manure that might in some way be saved. Stock are allowed to run on roads, and are partly fed by hand. Manure is permitted to remain out in the wet, and is trampled down by the feet of animals and is greatly wasted. Then again it is permitted to heat, and in this way is greatly wasted. If we took the time to mix it with swamp muck or plenty of waste straw, and kept it under cover or in a good shaped heap, the pile would be much superior.

St. Vincent, Grey: Grasshoppers this year have done more harm than ever known in any other year. They have destroyed half of the oat crop, eaten the leaves off the turnips and potatoes, stripped young apple trees, and attacked almost every green thing. Even the fall wheat in some places was eaten by them as soon as it appeared above the ground.

Westminster, Middlesex: Lucerne is a crop which should be grown by every stock farmer. It was invaluable this dry year. It is away ahead of fodder corn for soiling, as three or four crops can be taken off yearly.

Nichol, Wellington: Rape is grown to a considerable extent, but this year it was injured by drouth. Flax was an average crop, and this year the usual yield of about two and a half tons to the acre was experienced, which sold at $12 per ton.

Pilkington, Wellington: Flax is becoming yearly a more important crop, and is, I believe, considered profitable to all engaged in it. It certainly helps the villages, sometimes to the detriment of the farmer, in giving employment to men and children who otherwise would depend upon farm work.

Hallowell, Prince Edward: Lucerne is grown by a few farmers. My experience is that it requires well underdrained lands in order to secure a lasting crop, for it will die in wet or sour soil. If secured in good condition it is a valuable crop.

Gower S., Grenville: A few experiments have been made this year in beans and sunflowers. The beans did not appear to do well, but the sunflowers were a great crop. Some measured over 12 inches and contained over three thousand seeds.

Plantagenet S., Prescott: Hops are largely grown in this section and have been a fair crop—about 800 pounds per acre. They sold at from 17 to 20 cents per lb.

Herschel, Hastings: The most marked feature of this year's operations has been the decline in the price of lambs. Many buyers have been hit hard. Farmers who held for large prices have had to take 75c. to $1 less than last year. The drovers marketed ram lambs, but generally are holding wethers and ewes for feeding or higher figures. This season's losses, however, may result in many farmers profiting by the lessons taught by the O. A. C. in regard to the winter fattening of lambs.

Stephenson, Muskoka: We can raise sheep here that will compare favorably with those of any other part of Canada, and all we want is a good market for our lambs. If we were assured of this I believe the farmers would go more extensively into stock-raising of all kinds. As it is at present, the local butchers have us at their mercy.

Campbell, Manitoulin: Alsike grown for the seed is about the best direct money-making crop I know of. One or two of the knowing ones have made money by it. The travelling dairy did good work on its first trip to the island last season. Hope it will extend its valuable instruction to the township of Campbell and neighboring townships.

STATISTICS OF

THE WEATHER AND THE CROPS.

THE WEATHER.

TABLE I. Showing for each month the highest, lowest, mean highest, mean lowest and mean temperature at the principal stations in Ontario in 1893; also the annual mean for each station.

	Temperature.	Saugeen.	Birnam.	London.	Woodstock.	Stony Creek.	Toronto.	Lindsay.	Gravenhurst.	Ottawa.	Rockliffe.
		°	°	°	°	°	°	°	°	°	°
January.	Highest	42.4	41.8	42.0	44.0	46.0	39.8	39.0	40.0	40.2	24.0
	Lowest	-11.1	-22.0	-25.0	-15.0	-9.0	-17.8	-27.7	-30.0	-26.2	-31.0
	Mean highest	21.4	19.5	21.3	20.1	25.1	21.6	17.1	16.7	11.5	10.9
	Mean lowest	7.0	4.3	5.4	4.0	9.5	6.4	-1.4	-4.6	-5.4	-11.8
	Monthly mean	13.37	11.90	14.61	13.40	18.20	14.66	8.33	7.50	3.61	-2.52
February.	Highest	39.9	40.0	41.0	41.0	48.0	40.1	37.7	38.0	38.8	32.0
	Lowest	-10.0	-9.2	-8.0	-12.0	-6.0	-6.3	-14.9	-22.2	-23.1	-38.0
	Mean highest	25.9	24.5	27.2	26.2	31.1	27.6	23.9	23.7	19.2	18.5
	Mean lowest	7.2	9.9	9.6	6.8	13.7	9.4	2.2	-1.0	-1.5	-11.1
	Monthly mean	14.83	17.20	19.52	18.32	22.26	19.23	13.27	11.97	9.82	0.95
March.	Highest	54.9	58.5	63.0	60.0	65.0	61.4	54.6	52.0	45.0	57.0
	Lowest	-1.0	0.9	5.2	4.0	12.0	8.4	0.9	-7.5	-5.2	-22.0
	Mean highest	34.9	35.1	36.9	35.8	39.4	35.9	33.8	34.6	32.0	33.2
	Mean lowest	17.3	20.9	20.8	19.4	25.3	21.9	17.1	13.2	13.8	5.7
	Monthly mean	25.26	28.00	29.81	28.51	32.02	29.25	25.31	24.37	23.19	18.10
April.	Highest	66.0	69.0	69.0	66.5	70.0	69.3	67.7	60.0	65.2	60.0
	Lowest	17.6	24.0	23.1	20.0	26.0	22.4	12.2	12.0	9.0	5.0
	Mean highest	47.8	49.9	50.5	49.2	50.9	47.4	47.6	45.9	46.2	45.6
	Mean lowest	29.7	33.6	32.7	29.7	34.7	32.1	28.7	27.2	27.5	23.5
	Monthly mean	37.20	41.60	43.12	40.94	42.66	39.21	37.20	36.38	36.47	32.31
May.	Highest	79.0	79.0	77.0	78.0	82.0	73.2	78.6	75.0	87.5	82.0
	Lowest	32.1	29.0	32.0	34.0	36.0	37.6	32.4	30.0	33.8	28.0
	Mean highest	57.6	64.4	63.2	63.0	63.6	60.9	63.1	60.0	64.5	64.6
	Mean lowest	39.3	39.7	41.7	40.1	43.8	42.9	41.2	39.7	43.9	39.4
	Monthly mean	48.99	53.09	55.05	53.12	52.94	51.94	51.74	50.73	53.33	50.85
June.	Highest	85.4	94.0	91.0	91.0	96.0	90.7	91.7	88.0	91.5	94.0
	Lowest	43.1	40.0	43.0	42.0	45.0	48.5	43.5	45.0	49.5	39.0
	Mean highest	74.2	80 7	79.8	78.5	79.2	76.8	79.9	78.6	78.8	80.8
	Mean lowest	54.9	53.6	56.0	54.3	57.5	56.5	55.2	55.8	58.0	53.9
	Monthly mean	64.81	67.16	71.10	67.85	69.86	66.65	67.23	67.53	68.05	65.46
July.	Highest	83.0	95.0	92.0	95.0	98.0	93.3	94.3	85.0	88.3	87.0
	Lowest	43.1	42.0	43.5	43.0	46.0	45.0	41.9	44.0	49.0	42.0
	Mean highest	75.0	84.8	81.8	82.1	84.4	79.1	80.0	76.6	78.5	78.9
	Mean lowest	56.4	55.7	55.6	54.4	60.1	57.5	55.1	56.5	56.7	53.3
	Monthly mean	65.58	70.21	72.46	69.63	73.07	68.16	67.09	66.73	66.67	63.64
August.	Highest	85.0	92.5	92.0	94.0	96.0	88.8	93.3	90.0	94.8	94.0
	Lowest	42.3	38.0	39.0	42.0	45.0	48.7	40.8	40.0	45.5	40.0
	Mean highest	74.7	81.4	80.5	81.4	82.4	76.7	80.5	77.0	77.8	77.7
	Mean lowest	53.9	57.2	51.6	51.9	58.3	56.6	52.6	55.7	55.9	50.8
	Monthly mean	63.52	66.28	69.27	66.98	71.87	65.74	64.89	65.64	65.94	61.21
Septemb'r	Highest	84.5	87.0	82.0	82.0	83.0	79.1	78.0	78.0	76.3	77.0
	Lowest	34 6	24.0	29.0	34.0	36.0	36.2	33.2	34.0	34.9	28.0
	Mean highest	67.1	71.9	71.5	69.2	70.8	66.3	66.6	65.0	62.9	63.7
	Mean lowest	47.4	46.1	46.6	45.6	50.2	48.4	44.5	44.6	44.4	39.8
	Monthly mean	54.99	59.02	60.61	57.97	60.15	57.07	54.14	54.73	53.56	47.61
October.	Highest	80.0	80.0	79.5	80.0	73.0	68.4	75.8	77.0	72.9	78.0
	Lowest	24.1	19.0	22.5	24.0	28.0	26.9	23.0	22.0	21.5	18.0
	Mean highest	59.8	61.2	60.7	59.5	61.4	56.6	58.3	58.0	58.8	58.4
	Mean lowest	41.3	40.2	38.8	35.8	40.6	40.6	37.0	38.0	38.7	35.0
	Monthly mean	47.24	50.70	50.78	48.45	50.29	48.93	46.52	47.82	48.03	43.30
Novemb'r.	Highest	65.3	61.0	60.0	59.0	66.0	58.1	59.8	59.0	54.2	58.0
	Lowest	19.1	7.5	4.0	0.0	18.0	21.4	8.2	7.0	7.5	-1.0
	Mean highest	45.1	45.8	44.5	42.4	47.7	43.3	41.4	40.9	38.6	40.2
	Mean lowest	31.0	28.3	28.3	26.6	31.9	31.3	26.2	28.3	24.8	23.1
	Monthly mean	35.79	37.13	36.88	35.67	39.39	37.34	33.05	34.29	32.68	28.57
Decemb'r.	Highest	59.0	56.0	57.0	54.5	58.0	51.5	44.5	44.0	37.0	34.0
	Lowest	3.6	3.0	0.0	0.3	3.0	-4.6	-17.0	-19.0	-25.2	-34.0
	Mean highest	31.3	30.5	32.8	32.9	35.6	32.1	26.6	25.5	21.5	18.9
	Mean lowest	16.2	20.0	18.4	15.7	22.1	15.1	5.5	6.7	0.5	-6.2
	Monthly mean	23.82	25.25	26.94	25.37	29.33	24.42	17.86	16.74	11.53	5 81
	Annual mean	41 28	43.96	45.85	43.87	46 85	43.55	40 55	40 37	39.41	34.61

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TABLE II. Showing for each month the annual average of the highest, lowest, mean highest, mean lowest, and mean temperature at the principal stations in Ontario derived from the twelve years 1882-93; also the annual mean at each station for the same period.

	Temperature.	Saugeen.	Birnam.	London.	Woodstock.	Stony Creek.	Toronto.	Lindsay.	Gravenhurst.	Ottawa.	Rockliffe.
		°	°	°	°	°	°	°	°	°	°
January.	Highest	45.2	46.6	46.9	47.0	51.9	44.5	42.1	42.9	39.8	37.5
	Lowest	-9.4	-11.7	-11.3	-11 8	-6.0	-10.1	-24.3	-28.4	-23.3	-34.2
	Mean highest	26.7	25.4	27.1	27.0	32.2	27.4	22.8	22.8	18.3	17.4
	Mean lowest	11.3	12.2	12.0	8.9	17.9	12.1	4.7	2.1	0.0	-7.0
	Monthly mean	19.25	18.79	20.66	19.44	22.65	20.33	14.11	13.50	9.76	5.45
February.	Highest	45.8	47.7	46.5	46.5	47.9	43.8	42.3	43.3	40.0	41.9
	Lowest	-8.8	-13.2	-9.4	-10.7	-4.8	-7.4	-16.8	-22.6	-22.3	-34.6
	Mean highest	28.3	27.9	29.8	29.7	35.0	29.5	26.3	26.0	21.4	21.5
	Mean lowest	11.6	13.2	13.1	10 7	20.4	13.6	5.7	4.1	1.8	2.9
	Monthly mean	19.54	20.53	22.05	21.53	22.75	22.12	16.40	15.75	12.29	8.22
March.	Highest	50.4	54.9	54.1	53.6	55.5	50.6	47.8	47.4	44.4	48.4
	Lowest	-5.6	-7.2	-4.9	-5.8	3.3	1.7	-10.5	-15.9	-11.8	-25.0
	Mean highest	32.9	33.7	34.6	34.5	37.3	34.0	31.9	32.2	30.2	31.2
	Mean lowest	16.0	18.1	18.0	16.4	24.1	19.8	12.9	10.7	11.9	4.4
	Monthly mean	23.71	25.36	27.14	26.34	29.15	26.96	22.54	21.92	21.40	18.13
April.	Highest	73.4	77.3	75.9	75 7	77.3	70.1	73.9	68.8	72.2	72.3
	Lowest	13.3	15.4	18.2	16.0	23 3	20.8	12.4	9.5	12.2	4.0
	Mean highest	48.4	52.1	51.0	52.4	53.8	49.3	50.2	48.0	48.6	48.3
	Mean lowest	30.0	32.2	32.2	30.4	36.2	32.3	28.9	27.4	29.1	24.3
	Monthly mean	38.43	42.11	43.42	41.87	43.12	40.77	39.04	37 65	39.51	35.99
May.	Highest	78.8	82.4	80.4	80.4	81.9	75.7	81.6	81.3	81.8	84.4
	Lowest	27.9	27.8	30.5	28.8	35 6	32.0	27.7	26.9	30.0	23.9
	Mean highest	59.8	64.9	64.6	63.6	63.3	61.0	64.4	62.7	65.2	64.1
	Mean lowest	40.0	42.1	43.3	41.1	44.1	42.8	40.6	41.1	43.1	37.3
	Monthly mean	49.27	53.50	54.96	53.36	53.47	51.85	52.18	51.56	54.69	50.62
June.	Highest	85.2	88.4	87.0	88.2	91.0	85.3	89.2	88.3	88.7	90.1
	Lowest	38 1	37.2	40.3	38.6	45.2	43.3	38 5	37.3	41.4	34.1
	Mean highest	70.9	76.6	75.5	76.4	78.4	73.1	76.2	74.9	76.2	75.6
	Mean lowest	50.5	52.8	54.1	52 2	58.0	53.4	51.1	51.5	53.8	47.1
	Monthly mean	60.38	64.67	66.05	65.03	65.87	63.12	63.59	63.19	65.68	61.50
July.	Highest	86.3	91.2	89.7	89.9	94.4	88 9	90.7	88.4	90.1	90.3
	Lowest	41.4	40.8	44.5	43.7	49.7	47.4	42.1	42.8	46.7	40.1
	Mean highest	79.1	80.0	78.5	79.4	82.2	77.2	79.3	77.6	78.6	77.6
	Mean lowest	54.2	55.1	56.2	54.4	59 6	57.2	53 6	54.8	56.8	52.2
	Monthly mean	63.87	67.55	68.92	67.92	70.34	67.28	66.22	66.17	68.18	64.14
August.	Highest	86 5	90.9	89.1	90.1	92.8	87.4	90.3	88 5	89.1	89.5
	Lowest	40.6	39.1	40.0	41.5	47.5	46.3	39 2	39.7	42.9	38.0
	Mean highest	73.3	77 0	76.1	77.4	79.5	75.0	76.8	75.5	75.7	74.8
	Mean lowest	53.8	53.7	53.7	52.5	58.6	56.4	52.1	53.1	54.4	50.4
	Monthly mean	62.80	65.12	66.14	65.10	68.43	65.51	63.71	63.62	65.49	60.95
Septemb'r	Highest	84.5	86.5	84.0	85.9	87.9	81 6	85.5	82.9	82.8	83.4
	Lowest	32.7	32.1	32.7	31.7	37.4	37.2	30.6	31.9	31.9	29.6
	Mean highest	67.7	70.6	69.8	70.3	73.0	67.9	69.2	68.5	67.6	67.1
	Mean lowest	47.8	48.5	48.9	46.1	52.5	49.6	45.1	46.0	46 4	42 7
	Monthly mean	56.55	59.65	59.71	58.66	61.10	58.69	56.31	56 51	57.10	52.67
October.	Highest	73.7	76.2	73.2	75.0	74.7	70.8	74.1	72.4	69 8	72.8
	Lowest	22.8	22.7	23.4	22.2	26.3	25.6	19.7	21.0	22.0	17.3
	Mean highest	55.3	56.3	55.9	56.0	60.6	54.5	54.4	55.1	52.3	52.1
	Mean lowest	38.3	38.9	37.6	36.0	41.9	39.0	34.8	36.2	35.0	32.4
	Monthly mean	45.57	47.60	47.15	46.42	48.76	46.96	43.65	44 63	44.18	40.84
Novemb'r.	Highest	61.1	63.3	62.0	62.1	65.3	58.9	60.3	60.3	58.2	55.8
	Lowest	12.9	12.5	12.3	8.9	16.4	13 6	3.6	6.0	4.7	2.5
	Mean highest	43.0	42.7	43.6	42.5	46.7	42.6	40.1	41.1	38.3	36.8
	Mean lowest	29.6	30.1	29.4	27.2	32.7	30.2	25.3	25.2	24.8	21.7
	Monthly mean	35.50	36.43	36.92	35.72	39.10	36.67	32.44	33.09	32.03	28.95
Decemb'r.	Highest	49.9	49.5	50.8	48.5	53.4	46.8	43.8	44.9	41.4	41.7
	Lowest	-0.7	-1.8	-3.5	-4.8	3.1	-2.1	-14.4	-13.2	-16.4	-24.5
	Mean highest	33.1	32.1	33.6	32.5	36.6	33.3	28.7	29.3	24.5	24.3
	Mean lowest	20.2	20 6	19.8	17.5	22.9	20.3	12.8	13.0	8.2	4.1
	Monthly mean	26.63	26.27	27.51	26.19	30.06	27.31	21.40	21 97	17.10	14.14
	Annual mean	41.79	43.96	45.05	43.97	46.32	43.96	40 97	40.80	40.62	36.80

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TABLE III. Monthly summary of bright sunshine at the principal stations in Ontario in 1893, showing the number of hours the sun was above the horizon, the hours of registered sunshine, the total for the year, and the average derived from the twelve years 1882-1893.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for the year.
Hours of sun above horizon.	285.7	*291.4	369.9	406.4	461.1	465.7	470.9	434.5	376.3	340.2	286.9	274.3	4463.3
Wood-stock. 1893...	41.5	84.8	128.4	105.5	182.9	198.7	279.5	272.5	87.7	110.0	74.3	40.5	1606.3
1882-93	60.6	79.3	135.2	183.0	199.6	234.8	274.2	234.1	190.1	125.4	67.4	54.7	1838.4
Toronto. 1893...	77.4	102.4	156.5	155.0	213.4	251.4	290.5	272.7	217.8	158.3	83.9	73.1	2052.4
1882-92	77.1	95.4	152.7	195.2	216.4	256.7	288.1	250.9	219.1	142.2	78.0	58.2	2030.0
Barrie... 1893...	44.9	91.5	131.9	152.4	224.7	258.3	283.5	226.2	198.5	155.7	54.0	44.8	1866.4
1882-93	53.1	68.6	131.1	171.4	196.2	222.3	260.3	215.2	162.1	103.7	47.3	37.9	1669.2
Lindsay. 1893...	67.8	97.0	170.4	152.4	213.6	268.0	284.0	257.4	185.9	172.0	86.0	52.4	2006.9
1882-93	74.0	97.4	163.4	203.8	215.3	254.7	282.2	255.9	208.5	135.9	71.6	58.2	2020.9
Kingston 1893...	88.3	93.4	164.8	177.1	220.8	262.7	283 7	266.3	189.3	154.1	108.3	68.1	2076.9
1882-93	67.9	98.6	159.6	193.9	213.9	243.6	272.4	247.7	200.9	131.0	76.6	68.5	1974.6
Average of five stations 1893...	64.0	93.8	150.4	148.5	211.1	247.8	284.2	259.0	175.8	150.0	81.3	55.8	1921.7
1892...	72.8	93.6	174.9	215.2	165.4	201.4	315.1	231.6	218.2	145.6	35.1	56.6	1925.5
1882-93	66.5	87.9	148.4	189.4	208.3	242.4	275.4	240.7	196.2	127.7	68.2	55.5	1906.6

*The average possible sunshine for February 1882-1893 was 294.2.

TABLE IV. Monthly summary of inches of rain and snow precipitation in the several districts of Ontario in 1893; also the average derived from the twelve years 1882-1893.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for the year.
West and Southwest:	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Rain..... 1893....	0.32	1.15	1.19	3.37	2.42	2.91	1.67	2.03	1.42	4.25	2.70	2.52	25.95
1882-93.	1.23	1.72	1.23	1.84	3.32	3.44	2.50	2.76	2.41	2.79	2.59	1.56	27.39
Snow..... 1893....	25.3	23.9	4.4	4.8	.....	.....	.....	.....	.....	0.2	5.8	19.2	83.6
1882-93.	17.2	11.8	10.0	3.2	0.1	.....	.....	.....	.....	0.2	6.6	14.2	63.3
Northwest and North:													
Rain ..... 1893....	0.36	0.30	0.96	1.91	2.85	3.34	2.75	1.57	2.34	2.98	1.40	1.39	22.15
1882-93.	1.00	0.69	0.77	1.46	2.49	2.86	2.68	2.81	2.99	2.81	2.16	1.15	23.87
Snow..... 1893....	26.3	23.6	9.1	8.3	.....	.....	.....	.....	.....	2.0	17.7	34.0	121.0
1882-93.	27.8	21.8	14.4	4.2	0.5	.....	.....	.....	.....	1.2	14.0	22.0	105.9
Centre:													
Rain ..... 1893....	0.52	1.05	1.70	2.96	3.78	3.06	2.10	3.78	1.59	3.38	2.27	2.66	28.85
1882-93.	1.21	1.30	1.13	1.66	2.70	3.22	2.39	2.70	2.39	2.35	2.43	1.50	24.98
Snow..... 1893 ...	26.6	28.4	3 8	8.3	.....	.....	.....	.....	.....	0.7	6.5	21.4	95.7
1882-93.	18.9	13.7	9.8	3.3	0.1	.....	.....	.....	.....	0.3	5.9	11.8	63.8
East and Northeast:													
Rain ..... 1893 ...	0.51	0.44	0.90	2.20	4.33	3.28	3.22	3.29	2.48	2 61	1.51	0.84	25.61
1882-93.	0.96	0.79	0.94	1.43	2.58	2.93	2.95	3.00	2.54	2.10	2.02	1.04	23.28
Snow..... 1893....	23.7	21.1	4.4	6.8	.....	.....	.....	.....	.....	0.9	9.7	30.1	96.7
1882-93.	22.0	19.0	13.9	4.6	0.2	.....	.....	.....	.....	0.4	9.0	15.2	84.3

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TABLE V. Summary of the total fall of rain and snow, and of the number of days on which rain or snow fell in Ontario during the years 1892 and 1893 at stations reporting for the whole year, and the average for the province.

Station.	Observer.	Rain.				Snow.			
		1892.		1893.		1892.		1893.	
		Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.
ESSEX :									
Cottam	W. E. Wagstaff	34.18	108	27.01	86	33.6	29	83.5	43
Pelee Island	J. Quick	41.86	46	31.96	102	27.0	12	89.5	37
KENT :									
Blenheim	W. R. Fellows	32.30	76	29.66	68	41.5	25	115.5	35
Dealtown	S. J. Pardo	34.90	109	24.69	74	21.6	30	55.8	28
Ridgetown	T. Scane	32.92	106	25.42	106	39.5	43	78.4	69
ELGIN :									
Cowal	S. Maccoll	26.37	73	28.14	70	47.0	31	80.0	38
Port Stanley	M. Payne	33.88	155	28.73	130	64.5	93	122.1	95
NORFOLK :									
Port Dover	J. L. Morgan	26.77	142	26.95	127	59.3	57	98.2	70
HALDIMAND :									
Decewsville	R. E. King.	27.43	100	31.46	101	95.5	40	82.3	55
WELLAND :									
Niagara Falls S	E. Morden	29.30	101	28.45	92	70.7	34	75.1	41
LAMBTON :									
Sarnia	Wm. Mowbray	27.48	52	25.61	63	58.5	17	57.1	35
Thedford	Martin Wattson	28.03	98	29.52	77	81.5	38	89.8	42
Watford	D. Ross	36.06	84	25.88	66	81.5	38	89.8	42
Wyoming	J. Osborne	32.68	87	22.69	72	36.5	19	57.0	20
HURON :									
Goderich, L. H	R. Campbell	19.13	65	12.90	43	70.0	27	114.5	48
Sunshine	G. Hood	26.69	86	30.71	80	88.1	62	118.8	68
BRUCE :									
Lucknow	M. Macdonald	25.86	121	32.08	104	111.1	85	156.5	86
North Bruce	J. B. Muir	29.12	114	24.30	93	52.3	73	76.7	66
Point Clark	J. Hay	29.48	54	23.58	40	54.0	29	108.0	40
Saugeen	Mrs. J. R. Stewart.	28.06	127	19.09	114	138.0	93	156.4	98
GREY :									
Bognor	C. H. Heming	28.59	128	26.36	104	152.0	66	167.5	83
Owen Sound	John McLean	30.02	73	27.15	71	124.0	41	159.5	55
Durham	J. Gunn, M.D	24.71	101	27.64	103	96.0	69	139.0	66
Presque Isle	J. McKenzie	37.49	98	34.02	85	125.5	51	158.0	54
SIMCOE :									
Barrie		25.82	113	22.60	115	100.5	72	128.5	85
Coldwater	J. B. Lazonby	29.21	94	25.09	89	108.6	62	161.3	77
Orillia	H. A. Fitton	23.70	98	27.79	108	95 5	64	134.3	79
Georgina	F. Blanchard	24.88	93	18.82	69	65.6	67	84.8	49
MIDDLESEX :									
Coldstream	Daniel Zavitz	31.71	102	24.66	87	106.0	40	70.6	38
London	J. S. Dewar	38.19	118	32.50	123	76.9	77	82.9	85
Wilton Grove	H. Andersou	31.33	87	20.36	52	44.0	21	57.0	36
OXFORD :									
Princeton	D. Beamer	26.46	86	23 26	72	47.0	26	90.5	36
Woodstock	J. I. Bates, M.A	32.16	101	22.02	71	46.7	52	50.9	64
BRANT :									
Paris	John Kay	34.54	90	30.65	83	40.3	24	63.0	28
St. George	Dr. Kitchen	31.38	115	26.62	81	47.6	35	69.0	39
PERTH :									
St. Marys	J. Thomson	31.30	86	27.32	70	66.0	37	150.0	55
WELLINGTON :									
Elora	T. Connor	28.09	56	30.64	58	36.3	30	86.2	35
Guelph, O. A. C.	Prof. J. H. Panton	24.92	102	24.33	90	27.2	53	86.8	60

TABLE V. THE WEATHER.—(*Continued.*)

Station.	Observer.	Rain.				Snow.			
		1892.		1893.		1892.		1893.	
		Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.
DUFFERIN :									
Orangeville	N. Gordon	21.84	59	24.74	64	66.6	30	157.1	36
WENTWORTH :									
Stony Creek	C. F. Van Wagner.	29.09	86	34.82	79	54.0	23	78.0	36
HALTON :									
Georgetown	J. Barber, jr	25.22	127	31.81	131	49.8	82	116.7	94
YORK :									
Aurora	Rev. R. W. Amos.	24.92	85	23.15	81	52.1	41	61.7	47
Scarborough	R. Martin	25.05	98	28.81	118	42.1	51	62.4	77
Deer Park	J. Reeve	26.28	95	33.00	80	31.5	66	68.4	35
Toronto	Observatory	25.28	134	31.15	128	42.2	83	85.7	91
PEEL :									
Alton	W. J. Dods	25.27	112	26.82	113	49.2	59	113.8	65
LEN'X & ADDINGTON									
Denbigh	J. Lane	24.14	68	26.29	60	87.1	37	129.4	42
FRONTENAC :									
Kingston	A. P. Knight, M.A.	26.78	127	29.44	127	83.2	73	71.2	76
GLENGARRY :									
Alexandria	J. Smith, M.A	30.69	101	32.75	106	102 0	66	115.0	59
CARLETON :									
Ottawa	W. T. Ellis	23.10	115	29.48	54	106.0	70	54.0	29
RENFREW :									
Clontarf	A. Schultz	22.14	91	29.46	94	106.1	65	127.1	58
Rockliffe	C. McIntyre	21.63	67	25.54	93	78.5	59	87.4	65
Renfrew	Howard Wright	21.80	74	22.71	44	71.5	62	27.6	38
LANARK :									
Oliver's Ferry	W. J. McLean	25.27	69	27.37	72	56 0	26	48.0	22
VICTORIA :									
Lindsay	Thomas Beall	23.40	119	23.38	113	92.0	67	119.2	88
PETERBOROUGH :									
Ennismore	John N. Telford	22.99	58	24.40	52	45.5	21	71.5	30
Norwood	Rev. J. Carmichel.	25.12	80	31.22	69	103.0	29	127.3	43
Peterborough	T. Tellford	26.16	90	30.08	99	68.5	35	115.8	41
HALIBURTON :									
Haliburton	C. R. Stewart	26.52	92	28.57	93	60.9	57	92.3	65
HASTINGS :									
Bancroft	J. Cleak	31.25	82	28 06	85	110.3	48	146.7	47
Deseronto	J. Russell	26.11	82	31.96	102	61.4	42	89.5	37
Shannonville	John Kemp	18.65	47	16.69	45	76.0	26	82.0	26
MUSKOKA :									
Bala	E. B. Sutton	32.19	120	28.60	109	83.7	70	138.0	83
Beatrice	J. Hollingworth	31.41	95	29.42	89	91.3	55	161.6	59
Gravenhurst	T. M. Robinson	29.68	99	26.81	101	86.2	58	118.5	63
Burk's Falls	G. Whelpton	26.54	90	25.99	89	91.5	64	119.0	57
PARRY SOUND :									
Parry Sound	Rev. R. Mosely	28.92	129	31.29	115	149.3	88	167.4	90
Spruce'dale	A. Kirkam	31.92	79	28.91	66	98.6	46	121.0	38
Uplands	P. Macdonald	29.81	104	32.20	110	95.9	88	168.1	96
ALGOMA :									
Cartier	Agent C.P.R	23.01	59	19.41	64	76.0	36	114.5	58
Port Arthur	W. P. Cook	16.06	76	16.44	81	26.8	34	67.1	68
Savanne	Agent C.P R.	20.79	48	13.39	38	59.0	37	98.0	42
White River	Agent C.P.R.	12.51	78	16.42	97	8.2	97	120.2	116
Sault Ste. Marie	T. H. Elliott	18.69	69	29.81	68	109.0	20	158.5	55
Average for the Province		27.53	93	26.64	86	71.9	50	104.2	56

THE WEATHER.

TABLE VI. Comparative Meteorological Register for the seven years 1887-1893, as recorded at Toronto Observatory, in Latitude 43° 39.4′ N, and Longitude 5h. 17m. 34.65s. W.

Register.	1893.	1892.	1891.	1890.	1889.	1888.	1887.
	°	°	°	°	°	°	°
Average temperature	43.53	44.61	45.87	45.02	45.44	42.70	44.14
Difference from average (53 years)	— 0.63	+ 0.45	+ 1.71	+ 0.86	+ 1.28	— 1.46	— 0.02
Thermic anomaly (lat. 43° 40′)	— 7.49	— 6.41	— 5.15	— 6.00	— 5.58	— 8.32	— 6.88
Highest temperature	93.3	93.5	91.9	89.4	88.7	92.0	97.2
Lowest temperature	—17.8	—10.2	— 2.0	— 2.7	—11.3	—16.1	—16.6
Monthly and annual ranges	111.1	103.7	93.9	92.1	100.0	108.1	113.8
Average daily range	17.15	15.58	16.45	16.22	15.55	16.55	17.12
Greatest daily range	36.3	38.6	37.8	36.0	42.8	37.7	34.0
Average height of barometer at 32° Fah.	29.5996	29.6325	29.6385	29.6313	29.6177	29.6448	29.6329
Difference from average (52 years)	−0.0196	+0.0133	+0.0193	+0.0121	+0.0015	+0.0256	+0.0137
Highest barometer	30.467	30.356	30.266	30.334	30.365	30.432	30.607
Lowest barometer	28.227	28.846	28.536	28.762	28.582	28.793	28.704
Monthly and annual ranges	2.240	1.510	1.730	1.572	1.783	1.639	1.903
Average humidity of the air	77	77	75	78	77	74	75
Difference from average	0	0	— 2	+ 1	0	—3	—2
Average elasticity of aqueous vapour	0.262	0.272	0.267	0.272	0.271	0.243	0.261
Average temperature of dew point	41.5	42.5	42.0	42.5	42.4	39.5	41.4
Average of cloudiness	0.59	0.61	0.59	0.62	0.63	0.63	0.63
Difference from average (39 years)	— .03	— .01	— .03	.00	+ .01	+ .01	+ .01
Resultant direction of wind	N 66° W	N 54° W	N 57° W	N 48° W	N 63° W	N 59° W	N 46° W
Resultant velocity of the wind	1.95	1.81	1.63	1.80	2.04	2.67	1.92
Average velocity (miles per hour)	8.59	8.17	7.33	9.19	9.08	9.71	9.88
Difference from average (16 years)	.....	.....	.....	— 0.45	— 0.56	+ 0.07	+ 0.24
Total amount of rain in inches	31.145	25.285	26.735	32.110	24.575	22.819	17.969
Difference from average (53 years)	+ 3.750	— 2.110	— 0.660	+ 4.715	— 2.820	— 4.576	— 9.426
Number of days of rain	128	134	125	145	127	133	106
Total amount of snow in inches	85.7	42.2	47.8	52.6	66.5	34.6	77.9
Difference from average (50 years)	+16.89	—26.61	—21.01	—16.21	— 2.31	— 34.21	+ 9.09
Number of days of snow	91	83	70	81	60	83	78
Number of fair days	156	165	193	159	187	175	203
Number of days completely clouded	50	57	60	68	79	58	76
Number of auroras observed	18	33	18	7	6	21	25
Possible to see auroras (No. of nights)	208	195	212	186	169	183	180
Number of thunder storms	41	40	19	21	24	23	22
Number of fogs	31	36	38	43	34	26	39
Number of hours of bright sunshine	2052.4	2054.4	2065.4	1977.6	1909.2	2043.3	2063.5
Number of hours of possible sunshine	4463.3	4474.4	4463.3	4463.3	4463.3	4474.4	4463.3

During the years 1891-2-3 the wind has been obtained from the records of the anemograph at the Island and the entries at observation hours, and no comparison has been made with the result of former years.

RURAL AREA.

TABLE VII. Showing by County Municipalities and groups of Counties the Rural Area of Ontario, as returned by municipal assessors for 1893.

Counties.	Acres of assessed land.			Acres cleared.		Acres woodland.	Acres swamp or marsh.	Per cent. cleared.
	Resident.	Non-resident.	Total occupied.	1893.	1892.			
Essex	420,314	9,955	430,269	228,607	223,320	188,326	13,336	53.1
Kent	546,875	18,883	565,758	332,581	321,661	206,422	26,755	58.8
Elgin	419,172	16,576	435,748	290,126	285,119	134,601	11,021	66.6
Norfolk	391,639	5,294	396,933	237,030	237,285	131,191	28,712	59.7
Haldimand	279,253	1,159	280,412	213,764	210,418	59,443	7,205	76.2
Welland	221,967	6,890	228,857	173,756	167,953	49,812	5,289	75.9
Totals	2,279,220	58,757	2,337,977	1,475,864	1,445,756	769,795	92,318	63.1
Lambton	639,869	20,894	660,763	334,672	323,615	253,481	72,610	50.6
Huron	796,469	3,388	799,857	575,121	576,639	139,819	84,917	71.9
Bruce	807,420	31,014	838,434	481,436	474,118	236,463	120,535	57.4
Totals	2,243,758	55,296	2,299,054	1,391,229	1,374,372	629,763	278,062	60.5
Grey	1,043,464	19,002	1,062,466	586,331	579,596	296,942	179,193	55.2
Simcoe	921,991	40,961	962,952	513,147	503,974	377,137	72,668	53.3
Totals	1,965,455	59,963	2,025,418	1,039,478	1,083,570	674,079	251,861	54.3
Middlesex	749,773	7,797	757,570	524,840	535,601	217,512	15,218	69.3
Oxford	470,952	519	471,471	355,500	351,896	91,910	24,061	75.4
Brant	213,567	2,287	215,854	177,720	175,155	19,073	19,061	82.3
Perth	517,061	769	517,830	387,911	381,177	79,923	49,996	74.9
Wellington	624,318	2,294	626,612	451,556	451,781	85,457	89,599	72.1
Waterloo	302,740	4,254	306,994	242,212	240,567	46,864	17,918	78.9
Dufferin	346,381	10,037	356 418	207,252	204,708	70,991	78,175	58.1
Totals	3,224,792	27,957	3,252,749	2,346,991	2,340,885	611,730	294,028	72.2
Lincoln	186,405	4,886	191,291	155,588	155,200	33,801	1,902	81.3
Wentworth	270,720	1,012	271,732	207,163	207,493	42,452	22,117	76.2
Halton	219,517	4,620	224,137	167,524	166,256	34,228	22,385	74.7
Peel	288,093	105	288,198	243,576	241,862	29,615	15,007	84.5
York	527,234	8,082	535.316	419,892	419,875	61,679	53,745	78.4
Ontario	485,485	16,652	502,137	351,259	342,303	72,650	78,228	70.0
Durham	367,854	2,854	370,708	287,163	281,034	52,959	30,586	77.5
Northumberland	434,054	2,778	436,832	328,116	325,744	81,669	27,047	75.1
Prince Edward	222,803	6,791	229,594	187,255	186,119	31,955	10,384	81.6
Totals	3,002,165	47,780	3,049,945	2,347,536	2,325,886	441,008	261,401	77.0
Lennox & Addington	370,633	57,438	428,071	213,173	210,078	130,256	84,642	49 8
Frontenac	595,549	77,348	672,897	222,385	226,676	269,007	181,505	33.0
Leeds and Grenville	742,465	3,274	745,739	429,655	430,515	199,195	116,889	57 6
Dundas	234,814	1,650	236,464	137,613	137,274	52,620	46,231	58 2
Stormont	249,070	1,848	250,918	124,084	122,611	108,194	18,640	49.5
Glengarry	289,947	163	290,110	158,033	149,624	114,079	17,998	54 5
Prescott	278,882	8,882	287,764	148,688	149,900	129,023	10,053	51.7
Russell	240,114	13,380	253,494	79,775	80,390	172,717	1,002	31.5
Carleton	553,802	10,517	564,319	299,585	295,171	130,950	133,784	53.1
Renfrew	899,164	27,258	926,422	278,427	276,488	525,101	122,894	30.1
Lanark	636,832	33,933	670,765	300,263	295,310	232,893	137,609	44.8
Totals	5,091,272	235,691	5,326,963	2,391,681	2,374,037	2,064,035	871,247	44.9
Victoria	562,178	22,483	584,661	259,018	254,468	172,741	152,902	44.3
Peterborough	522,107	28,421	550,528	230,071	230,258	245,166	75,291	41.8
Haliburton	544,232	21,686	565,918	32,410	32,486	506,952	26,556	5.7
Hastings	945,885	59,721	1,005,606	358,280	350,695	511,341	135,985	35.6
Totals	2,574,402	132,311	2,706,713	879,779	867,907	1,436,200	390,734	32 5
Muskoka	464,383	59,033	523,416	55,411	55,551	374,876	93,129	10.6
Parry Sound	435,759	41,764	477,523	51,482	49,502	360,339	65,702	10.8
Nipissing	135,575	61,581	197,156	14,065	14,065	151,825	31,266	7.1
Algoma	523,945	238,421	762,366	58,048	58,609	639,579	64,739	7.6
Totals	1,559,662	400,799	1,960,461	179,006	177,727	1,526,619	254,836	9.1
The Province 1893	21,940,726	1,018,554	22,959,280	12,111,564	.....	8,153,229	2,694,487	52.8
The Province 1892	21,923,424	962,040	22,885,464	.....	11,990,140	8,264,881	2,630,443	52.4

AREA AND PRODUCE—FALL WHEAT.

TABLE VIII. Showing by County Municipalities and groups of Counties the area and produce of Fall Wheat in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	38,118	686,124	18.0	44,161	644,751	14.6	33,363	647,215	19.4
Kent	65,119	1,341,451	20.6	72,175	1,342,455	18.6	61,035	1,229,932	20.1
Elgin	47,371	985,317	20.8	50,541	1,051,253	20.8	44,287	904,421	20.4
Norfolk	40,511	696,789	17.2	40,579	917,085	22.6	34,138	649,032	19.0
Haldimand	36,387	560,360	15.4	40,325	709,720	17.6	33,633	561,122	16.7
Welland	22,282	269,612	12.1	24,756	405,998	16.4	22,444	367,412	16.4
Totals	249,788	4,539,653	18.2	272,537	5,071,262	18.6	228,930	4,359,134	19.0
Lambton	47,691	910,898	19.1	45,529	842,287	18.5	36,991	724,849	19.6
Huron	56,996	1,168,418	20.5	61,867	1,385,821	22.4	63,308	1,295,743	20.5
Bruce	34,796	612,410	17.6	39,949	858,904	21.5	44,292	874,990	19.8
Totals	139,483	2,691,726	19.3	147,345	3,087,012	21.0	144,591	2,895,582	20.0
Grey	18,827	297,467	15.8	20,821	447,652	21.5	24,944	489,720	19.6
Simcoe	51,907	918,754	17.7	56,881	1,274,134	22.4	53,764	1,125,469	20.9
Totals	70,734	1,216,221	17.2	77,702	1,721,786	22.2	78,708	1,615,189	20.5
Middlesex	80,212	1,572,155	19.6	83,323	1,899,764	22.8	73,024	1,513,316	20.7
Oxford	47,354	1,041,788	22.0	43,850	1,034,860	23.6	39,598	842,050	21.3
Brant	28,751	462,891	16.1	32,331	772,711	23.9	28,925	565,147	19.5
Perth	40,131	890,908	22.2	40,857	923,368	22.6	42,575	885,384	20.8
Wellington	14,670	306,603	20.9	13,899	323,847	23.3	22,217	453,778	20.4
Waterloo	40,281	884,344	21.9	39,488	1,010,893	25.6	38,976	837,746	21.5
Dufferin	4,495	77,314	17.2	4,870	116,880	24.0	8,795	171,636	19.5
Totals	255,994	5,236,003	20.5	258,618	6,082,323	23.5	254,110	5,269,057	20.7
Lincoln	21,811	329,346	15.1	24,324	469,453	19.3	21,560	395,059	18.3
Wentworth	30,280	593,488	19.6	32,072	721,620	22.5	29,715	574,829	19.3
Halton	22,538	464,283	20.6	23,730	541,044	22.8	21,481	429,565	20.0
Peel	25,148	548,226	21.8	26,119	621,632	23.8	25,252	542,118	21.5
York	33,588	725,501	21.6	36,128	791,203	21.9	35,251	781,014	22.2
Ontario	6,508	124,954	19.2	8,096	180,541	22.3	8,423	185,890	22.1
Durham	5,196	101,842	19.6	5,115	101,277	19.8	3,998	82,026	20.5
Northumberland	15,592	286,893	18.4	17,148	349,819	20.4	12,367	246,235	19.9
Prince Edward	5,720	88,088	15.4	6,605	129,458	19.6	3,249	58,057	17.9
Totals	166,381	3,262,621	19.6	179,337	3,906,047	21.8	161,296	3,294,793	20.4
Lennox and Addington	3,680	74,336	20.2	2,808	57,564	20.5	2,552	46,255	18.1
Frontenac	329	6,350	19.3	922	19,823	21.5	1,450	27,059	18.7
Leeds and Grenville	3,299	60,042	18.2	2,384	50,302	21.1	4,380	80,307	18.3
Dundas	342	7,456	21.8	670	17,822	26.6	896	16,791	18.7
Stormont	126	2,268	18.0	145	3,422	23.6	489	8,991	18.4
Glengarry	169	2,636	15.6	188	4,418	23.5	453	7,541	16.6
Prescott	121	1,936	16.0	.....	.....	.....	63	823	13.1
Russell	40	700	17.5	.....	.....	.....	164	2,922	17.8
Carleton	521	10,785	20.7	475	11,875	25.0	1,156	18,052	15.6
Renfrew	374	8,116	21.7	499	11,527	23.1	764	13,876	18.2
Lanark	1,360	27,608	20.3	1,280	30,848	24.1	2,701	51,433	19.0
Totals	10,361	202,233	19.5	9,371	207,601	22.2	15,068	274,050	18.2
Victoria	2,783	55,103	19.8	2,949	64,878	22.0	6,666	132,189	19.8
Peterborough	7,230	139,539	19.3	6,338	121,056	19.1	9,288	179,708	19.3
Haliburton	99	1,624	16.4	107	1,980	18.5	125	2,015	16.1
Hastings	10,467	186,313	17.8	11,510	210,633	18.3	9,719	185,722	19.1
Totals	20,579	382,579	18.6	20,904	398,547	19.1	25,798	499,634	19.4
Muskoka	16	288	18.0	32	512	16.0	55	945	17.2
Parry Sound	70	1,148	16.4	55	935	17.0	51	831	16.3
Nipissing	8	140	17.5	7	140	20.0	3	46	15.3
Algoma	540	12,636	23.4	614	16,332	26.6	468	9,913	21.2
Totals	634	14,212	22.4	708	17,919	25.3	577	11,735	20.3
The Province	913,954	17,545,248	19.2	966,522	20,492,497	21.2	909,078	18,219,174	20.0

AREA AND PRODUCE—SPRING WHEAT.

TABLE IX. Showing by County Municipalities and groups of Counties the area and produce of Spring Wheat in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	349	4,428	12.4	1,369	12,047	8.8	1,556	23,028	14.8
Kent	1,160	16,240	14.0	4,542	51,779	11.4	3,458	53,254	15.4
Elgin	30	450	15.0	915	12,993	14.2	1,434	22,297	15.5
Norfolk	339	4,136	12.2	894	9,387	10.5	801	11,299	14.1
Haldimand	926	7,315	7.9	4,324	38,051	8.8	3,298	42,093	12.8
Welland	70	392	5.6	278	2,641	9.5	1,153	15,847	13.7
Totals	2,874	32,961	11.5	12,322	126,898	10.3	11,700	167,818	14.3
Lambton	1,154	9,463	8.2	6,511	60,552	9.3	5,867	84,734	14.4
Huron	6,943	86,788	12.5	19,344	288,226	14.9	15,532	219,709	14.1
Bruce	7,653	88,010	11.5	18,918	249,718	13.2	13,292	187,832	14.1
Totals	15,750	184,261	11.7	44,773	598,496	13.4	34,691	492,275	14.2
Grey	14,580	182,250	12.5	25,631	328,077	12.8	35,763	504,247	14.1
Simcoe	22,499	281,238	12.5	40,386	480,593	11.9	33,931	510,282	15.0
Totals	37,079	463,488	12.5	66,017	808,670	12.2	69,694	1,014,529	14.6
Middlesex	1,529	17,736	11.6	6,318	75,816	12.0	8,872	134,566	15.2
Oxford	999	12,887	12.9	5,982	66,998	11.2	7,965	128,462	16.1
Brant	1,407	15,899	11.3	1,393	16,577	11.9	1,220	16,848	13.8
Perth	4,192	47,789	11.4	14,752	194,726	13.2	11,562	174,872	15.1
Wellington	20,057	266,758	13.3	35,738	525,349	14.7	21,615	329,365	15.2
Waterloo	2,690	32,011	11.9	6,532	94,061	14.4	4,606	68,783	14.9
Dufferin	16,609	235,848	14.2	26,927	290,812	10.8	20,982	304,099	14.5
Totals	47,483	628,928	13.2	97,642	1,264,339	12.9	76,822	1,156,995	15.1
Lincoln	103	886	8.6	2,187	17,933	8.2	2,025	28,173	13.9
Wentworth	392	4,390	11.2	4,150	44,820	10.8	2,783	40,828	14.7
Halton	1,358	13,987	10.3	8,176	92,389	11.3	4,210	61,370	14.6
Peel	11,023	120,151	10.9	23,708	310,575	13.1	14,312	231,287	16.2
York	13,379	157,872	11.8	32,660	437,644	13.4	25,633	425,382	16.6
Ontario	34,789	372,242	10.7	51,657	526,901	10.2	46,516	759,729	16.3
Durham	16,688	160,205	9.6	35,312	300,152	8.5	34,381	533,829	15.5
Northumberland	17,207	123,890	7.2	30,044	297,436	9.9	26,565	353,666	13.3
Prince Edward	2,216	20,830	9.4	7,600	75,240	9.9	6,040	80,781	13.4
Totals	97,155	974,453	10.0	195,494	2,103,090	10.8	162,465	2,515,045	15.5
Lennox and Addington	3,583	38,696	10.8	5,487	66,941	12.2	5,470	77,597	14.2
Frontenac	6,409	74,985	11.7	9,266	139,917	15.1	8,553	128,508	15.0
Leeds and Grenville	8,916	115,016	12.9	13,378	200,670	15.0	12,499	196,993	15.8
Dundas	3,178	40,996	12.9	5,555	88,325	15.9	4,457	83,110	18.6
Stormont	4,274	55,562	13.0	5,103	81,138	15.9	4,422	77,948	17.6
Glengarry	5,489	66,966	12.2	8,464	138,810	16.4	7,723	126,365	16.4
Prescott	6,731	94,234	14.0	9,247	139,630	15.1	8,189	130,899	16.0
Russell	2,567	28,237	11.0	3,848	56,950	14.8	3,855	65,400	17.0
Carleton	19,607	268,616	13.7	26,886	483,948	18.0	22,100	394,210	17.8
Renfrew	26,571	350,737	13.2	29,260	558,866	19.1	24,843	414,153	16.7
Lanark	11,997	172,757	14.4	17,717	310,048	17.5	14,528	223,393	15.4
Totals	99,322	1,306,802	13.2	134,211	2,265,243	16.9	116,639	1,918,576	16.4
Victoria	22,749	227,490	10.0	44,272	451,574	10.2	32,149	465,126	14.5
Peterborough	17,273	141,639	8.2	31,374	320,015	10.2	25,830	338,429	13.1
Haliburton	1,291	13,814	10.7	1,854	23,731	12.8	1,424	18,649	13.1
Hastings	9,081	106,248	11.7	14,292	190,084	13.3	13,742	204,732	14.9
Totals	50,394	489,191	9.7	91,792	985,404	10.7	73,145	1,026,936	14.0
Muskoka	676	8,856	13.1	1,227	17,178	14.0	1,259	18,669	14.8
Parry Sound	904	13,831	15.3	1,264	16,053	12.7	1,294	20,246	15.6
Nipissing	352	6,160	17.5	343	6,174	18.0	103	1,767	17.2
Algoma	4,732	77,132	16.3	6,217	98,850	15.9	5,812	109,347	18.8
Totals	6,664	105,979	15.9	9,051	138,255	15.3	8,468	150,029	17.7
The Province	356,721	4,186,063	11.7	651,302	8,290,395	12.7	553,624	8,442,203	15.2

AREA AND PRODUCE—BARLEY.

TABLE X. Showing by County Municipalities and groups of Counties the area and produce of Barley in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	3,769	89,702	23.8	3,264	74,746	22.9	3,462	88,831	25.7
Kent	6,560	143,008	21.8	6,923	179,306	25.9	6,815	182,277	26.7
Elgin	5,474	119,881	21.9	5,691	129,186	22.7	4,983	131,279	26.3
Norfolk	2,363	44,897	19.0	2,877	62,719	21.8	5,479	137,332	25.1
Haldimand	7,679	116,721	15.2	7,411	143,773	19.4	12,582	270,504	21.5
Welland	2,872	57,153	19.9	2,915	59,758	20.5	3,591	82,473	23.0
Totals	28,717	571,362	19.9	29,081	649,488	22.3	36,912	892,696	24.2
Lambton	11,487	178,049	15.5	10,035	170,595	17.0	13,909	345,196	24.8
Huron	15,645	389,561	24.9	17,139	467,395	27.3	25,447	696,342	27.4
Bruce	10,352	237,061	22.9	10,627	297,556	28.0	17,142	446,636	26.1
Totals	37,484	804,671	21.5	37,801	936,046	24.8	56,498	1,488,174	26.3
Grey	14,180	330,394	23.3	13,948	359,858	25.8	20,288	501,728	24.7
Simcoe	25,560	603,216	23.6	31,018	812,672	26.2	30,481	791,136	26.0
Totals	39,740	933,610	23.5	44,966	1,172,530	26.1	50,769	1,292,864	25.5
Middlesex	10,564	216,562	20.5	11,585	262,980	22.7	14,533	379,535	26.1
Oxford	11,215	238,880	21.3	11,299	296,034	26.2	15,835	464,867	29.4
Brant	13,130	254,722	19.4	13,983	303,431	21.7	17,740	466,117	26.3
Perth	12,509	308,972	24.7	9,948	279,539	28.1	16,344	479,863	29.4
Wellington	25,502	640,100	25.1	25,428	689,099	27.1	33,493	944,621	28.2
Waterloo	14,883	360,169	24.2	14,202	453,044	31.9	16,697	506,414	30.3
Dufferin	9,752	238,924	24.5	9,806	245,150	25.0	11,574	295,975	25.6
Totals	97,555	2,258,329	23.1	96,251	2,529,277	26.3	126,216	3,537,392	28.0
Lincoln	2,367	40,949	17.3	2,433	59,122	24.3	3,998	95,989	24.0
Wentworth	8,269	167,861	20.3	9,399	233,095	24.8	12,362	329,785	26.7
Halton	7,371	153,317	20.8	6,922	178,588	25.8	11,819	323,140	27.3
Peel	23,093	540,376	23.4	20,938	573,701	27.4	32,753	892,366	27.2
York	35,606	854,544	24.0	39,163	1,057,401	27.0	52,814	1,514,407	28.7
Ontario	23,783	518,469	21.8	26,842	665,682	24.8	35,865	998,219	27.8
Durham	32,626	645,995	19.8	31,950	821,115	25.7	43,201	1,133,974	26.2
Northumberland	25,350	372,645	14.7	24,570	535,626	21.8	39,928	880,603	22.1
Prince Edward	15,388	215,432	14.0	21,761	428,692	19.7	35,137	719,418	20.5
Totals	173,853	3,509,588	20.2	183,978	4,553,022	24.7	267,877	6,887,901	25.7
Lennox and Addington	9,559	153,900	16.1	16,729	317,851	19.0	32,842	716,749	21.8
Frontenac	5,006	99,619	19.9	5,374	123,602	23.0	15,016	341,755	22.8
Leeds and Grenville	7,746	130,907	16.9	8,482	189,997	22.4	10,147	246,938	24.3
Dundas	2,297	48,696	21.2	4,015	91,542	22.8	5,887	169,347	28.8
Stormont	3,241	70,654	21.8	2,746	68,101	24.8	2,508	67,189	26.8
Glengarry	2,128	44,901	21.1	2,086	46,309	22.2	2,213	51,045	23.1
Brescott	4,023	102,587	25.5	4,579	92,496	20.2	3,309	85,631	25.9
Russell	2,053	43,318	21.1	1,885	40,339	21.4	1,669	41,370	24.8
Carleton	7,686	163,712	21.3	7,457	205,068	27.5	8,165	239,044	29.3
Renfrew	924	19,958	21.6	1,380	30,636	22.2	1,413	33,776	23.9
Lanark	2,656	51,526	19.4	3,660	87,108	23.8	2,957	75,672	25.6
Totals	47,319	929,778	19.6	58,393	1,293,049	22.1	86,126	2,068,516	24.0
Victoria	19,548	392,915	20.1	22,512	542,539	24.1	28,402	715,756	25.2
Peterborough	5,624	103,482	18.4	5,638	129,110	22.9	11,376	271,439	23.9
Haliburton	127	2,591	20.4	167	3,173	19.0	257	6,001	23.4
Hastings	14,221	231,802	16.3	17,558	395,055	22.5	33,429	755,436	22.6
Totals	39,520	730,790	18.5	45,875	1,069,877	23.3	73,464	1,748,632	23.8
Muskoka	908	16,707	18.4	692	13,494	19.5	588	12,455	21.2
Parry Sound	799	17,418	21.8	747	16,658	22.3	700	15,874	22.7
Nipissing	242	5,445	22.5	228	5,700	25.0	67	1,565	23.4
Algoma	1,178	28,390	24.1	1,213	35,177	29.0	699	18,424	26.4
Totals	3,127	67,960	21.7	2,880	71,029	24.7	2,054	48,318	23.5
The Province	467,315	9,806,088	21.0	499,225	12,274,318	24.6	699,916	17,964,493	25.7

AREA AND PRODUCE—OATS.

TABLE XI. Showing by County Municipalities and groups of Counties the area and produce of Oats in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	38,453	1,238,187	32.2	40,339	1,202,102	29.8	32,304	1,176,647	36.4
Kent	38,647	1,190,328	30.8	37,807	1,421,543	37.6	34,105	1,327,098	38.9
Elgin	33,379	991,356	29.7	31,432	958,676	30.5	32,571	1,190,316	36.5
Norfolk	25,030	598,217	23.9	26,331	797,829	30.3	26,561	833,131	31.4
Haldimand	26,039	656,183	25.2	24,191	672,510	27.8	23,462	723,157	30.8
Welland	18,429	383,323	20.8	19,083	473,258	24.8	19,615	587,177	29.9
Totals	179,977	5,057,594	28.1	179,183	5,525,918	30.8	168,618	5,837,526	34.6
Lambton	51,197	1,203,130	23.5	46,869	1,331,080	28.4	43,011	1,481,759	34.5
Huron	97,976	3,536,934	36.1	88,421	3,519,156	39.8	81,756	3,033,871	37.1
Bruce	71,522	2,217,182	31.0	70,391	2,632,623	37.4	63,834	2,108,105	33.0
Totals	220,695	6,957,246	31.5	205,681	7,482,859	36.4	188,601	6,623,735	35.1
Grey	114,837	3,663,300	31.9	104,194	3,813,500	36.6	93,677	3,046,235	32.5
Simcoe	86,606	2,762,731	31.9	79,389	2,873,882	36.2	68,363	2,359,212	34.5
Totals	201,443	6,426,031	31.9	183,583	6,687,382	36.4	162,040	5,405,447	33.4
Middlesex	78,186	2,337,761	29.9	75,456	2,573,050	34.1	74,160	2,760,480	37.2
Oxford	57,902	1,916,556	33.1	54,932	2,087,416	38.0	53,966	2,070,098	38.4
Brant	18,388	470,733	25.6	19,006	598,689	31.5	18,473	650,549	35.2
Perth	74,991	2,872,155	38.3	67,219	2,675,316	39.8	60,217	2,463,116	40.9
Wellington	83,220	2,896,056	34.8	72,895	2,850,195	39.1	74,492	2,775,668	37.3
Waterloo	46,764	1,505,801	32.2	44,461	1,765,102	39.7	38,086	1,429,855	37.5
Dufferin	48,086	1,716,670	35.7	39,142	1,514,795	38.7	33,005	1,155,253	35.0
Totals	407,537	13,715,732	33.7	373,111	14,064,563	37.7	352,399	13,305,019	37.8
Lincoln	19,058	470,733	24.7	18,420	653,910	35.5	18,059	580,467	32.1
Wentworth	29,406	846,893	28.8	26,078	912,730	35.0	28,575	1,012,017	35.4
Halton	21,513	662,600	30.8	22,068	812,102	36.8	19,738	705,432	35.7
Peel	38,521	1,332,827	34.6	32,200	1,310,540	40.7	31,225	1,182,831	37.9
York	77,464	2,626,030	33.9	72,400	2,975,640	41.1	66,420	2,664,492	40.1
Ontario	61,274	1,991,405	32.5	57,184	2,213,021	38.7	51,645	1,976,514	38.3
Durham	39,582	1,282,457	32.4	39,093	1,360,436	34.8	35,237	1,249,361	35.5
Northumberland	34,868	843,806	24.2	34,081	991,757	29.1	31,194	925,659	29.7
Prince Edward	13,400	266,660	19.9	15,134	394,997	26.1	13,798	381,368	27.6
Totals	335,086	10,323,411	30.8	316,658	11,625,133	36.7	295,891	10,678,141	36.1
Lennox and Addington	25,365	555,494	21.9	24,803	652,319	26.3	22,821	640,898	28.1
Frontenac	34,220	882,876	25.8	33,159	918,504	27.7	28,880	826,850	28.6
Leeds and Grenville	71,543	1,824,347	25.5	76,143	2,162,461	28.4	67,557	2,108,988	31.2
Dundas	32,103	956,669	29.8	33,696	1,172,621	34.8	30,167	1,065,375	35.3
Stormont	25,498	706,295	27.7	27,985	985,072	35.2	24,484	841,110	34.4
Glengarry	30,789	849,776	27.6	33,648	1,127,208	33.5	30,639	980,743	32.0
Prescott	29,319	829,728	28.3	32,321	982,558	30.4	27,269	848,206	31.1
Russell	18,120	351,528	19.4	19,690	590,700	30.0	18,686	592,275	31.7
Carleton	58,301	1,533,316	26.3	68,515	2,404,877	35.1	61,148	2,146,597	35.1
Renfrew	44,399	1,376,369	31.0	44,828	1,573,463	35.1	41,902	1,363,917	32.6
Lanark	45,711	1,270,766	27.8	45,396	1,534,385	33.8	38,968	1,237,768	31.8
Totals	415,368	11,137,164	26.8	440,184	14,104,168	32.0	392,521	12,652,727	32.2
Victoria	53,244	1,591,996	29.9	45,605	1,678,264	36.8	41,015	1,384,748	33.8
Peterborough	37,666	1,035,815	27.5	33,182	1,045,233	31.5	31,408	982,335	31.3
Haliburton	5,790	147,066	25.4	5,372	139,672	26.0	5,207	143,479	27.6
Hastings	48,286	1,250,607	25.9	46,259	1,336,885	28.9	43,124	1,269,136	29.4
Totals	144,986	4,025,484	27.8	130,418	4,200,054	32.2	120,754	3,779,698	31.3
Muskoka	10,825	310,678	28.7	11,178	334,222	29.9	9,365	274,673	29.3
Parry Sound	9,559	276,255	28.9	10,095	303,860	30.1	6,120	183,085	29.9
Nipissing	2,035	62,678	30.8	2,577	94,576	36.7	697	22,906	32.9
Algoma	9,133	292,256	32.0	8,801	335,318	38.1	5,507	191,094	34.7
Totals	31,552	941,867	29.9	32,651	1,067,976	32.7	21,689	671,758	31.0
The Province	1,936,644	58,584,529	30.3	1,861,469	64,758,053	34.8	1,702,513	58,954,051	34.6

AREA AND PRODUCE—RYE.

TABLE XII. Showing by County Municipalities and groups of Counties the area and produce of Rye in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	752	12,709	16.9	966	15,456	16.0	788	15,452	19.6
Kent	1,096	19,947	18.2	905	15,204	16.8	783	16,222	20.7
Elgin	1,710	28,899	16.9	2,302	31,768	13.8	1,370	23,793	17.4
Norfolk	3,758	48,854	13.0	5,519	80,026	14.5	6,987	97,171	13.9
Haldimand	532	7,980	15.0	1,136	17,381	15.3	775	12,320	15.9
Welland	730	8,322	11.4	395	6,004	15.2	590	9,750	16.5
Totals	8,578	126,711	14.8	11,223	165,839	14.8	11,293	174,708	15.5
Lambton	157	2,669	17.0	319	4,562	14.3	237	3,950	16.7
Huron	233	3,146	13.5	782	15,093	19.3	316	5,587	17.7
Bruce	291	3,987	13.7	346	4,394	12.7	447	7,918	17.7
Totals	681	9,802	14.4	1,447	24,049	16.6	1,000	17,455	17.5
Grey	676	10,748	15.9	405	7,290	18.0	563	9,742	17.3
Simcoe	1,711	24,125	14.1	986	16,269	16.5	2,158	38,204	17.7
Totals	2,387	34,873	14.6	1,391	23,559	16.9	2,721	47,946	17.6
Middlesex	338	5,002	14.8	553	11,060	20.0	497	8,734	17.6
Oxford	1,019	16,610	16.3	1,117	17,537	15.7	1,149	18,153	15.8
Brant	1,048	13,414	12.8	1,674	24,106	14.4	1,086	16,104	14.8
Perth	259	4,973	19.2	263	3,235	12.3	187	2,799	15.0
Wellington	1,192	21,337	17.9	1,352	23,930	17.7	882	15,700	17.8
Waterloo	547	10,393	19.0	530	11,130	21.0	517	9,277	17.9
Dufferin	271	3,523	13.0	198	4,613	23.3	598	10,665	17.8
Totals	4,674	75,252	16.1	5,687	95,611	16.8	4,916	81,432	16.6
Lincoln	710	10,650	15.0	319	6,444	20.2	417	6,526	15.6
Wentworth	470	6,580	14.0	433	7,101	16.4	868	14,653	16.9
Halton	549	8,015	14.6	827	12,736	15.4	558	9,202	16.5
Peel	926	15,464	16.7	1,508	23,374	15.5	1,201	22,645	18.9
York	1,053	16,216	15.4	1,116	17,633	15.8	1,497	24,972	16.7
Ontario	1,386	22,037	15.9	1,219	19,382	15.9	2,297	39,759	17.3
Durham	2,805	37,587	13.4	2,346	31,906	13.6	4,292	64,827	15.1
Northumberland	8,871	114,436	12.9	8,550	107,730	12.6	10,311	143,530	13.3
Prince Edward	4,671	59,789	12.8	5,034	75,510	15.0	7,938	111,860	14.1
Totals	21,441	290,774	13.6	21,352	301,816	14.1	29,879	437,974	14.7
Lennox and Addington	1,563	21,882	14.0	2,070	30,015	14.5	4,241	62,603	14.8
Frontenac	2,538	33,248	13.1	2,343	32,568	13.9	3,468	55,438	16.0
Leeds and Grenville	3,047	42,963	14.1	2,110	36,503	17.3	5,106	88,285	17.3
Dundas	485	8,245	17.0	861	19,373	22.5	1,152	25,830	22.4
Stormont	134	2,077	15.5	243	5,176	21.3	396	8,093	20.4
Glengarry	113	1,695	15.0	76	1,140	15.0	67	1,088	16.2
Prescott	397	5,955	15.0	68	1,428	21.0	228	4,108	18.0
Russell	227	3,405	15.0	275	5,308	19.3	255	5,162	20.2
Carleton	2,245	33,451	14.9	1,896	31,284	16.5	4,933	88,974	18.0
Renfrew	6,521	103,684	15.9	6,728	122,450	18.2	6,799	128,850	19.0
Lanark	1,383	24,756	17.9	1,720	32,164	18.7	3,883	72,318	18.6
Totals	18,653	281,361	15.1	18,390	317,409	17.3	30,528	540,749	17.7
Victoria	873	11,349	13.0	1,157	20,942	18.1	1,164	19,907	17.1
Peterborough	3,848	55,026	14.3	3,610	55,594	15.4	3,493	53,247	15.2
Haliburton	121	1,742	14.4	170	2,533	14.9	241	4,013	16.7
Hastings	6,279	92,929	14.8	7,653	104,081	13.6	11,994	184,662	15.4
Totals	11,121	161,046	14.5	12,590	183,150	14.5	16,892	261,829	15.5
Muskoka	359	5,924	16.5	231	3,396	14.7	349	6,439	18.4
Parry Sound	339	5,627	16.6	335	8,375	25.0	322	6,729	20.9
Nipissing	56	840	15.0	98	1,470	15.0	34	604	17.8
Algoma	197	2,561	13.0	329	7,830	23.8	226	4,084	18.1
Totals	951	14,952	15.7	993	21,071	21.2	931	17,856	19.2
The Province	68,486	994,771	14.5	73,073	1,132,504	15.5	98,160	1,579,949	16.1

AREA AND PRODUCE—PEAS.

TABLE XIII. Showing by County Municipalities and groups of Counties the area and produce of Peas in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	2,913	53,891	18.5	1,332	24,642	18.5	3,420	63,631	18.6
Kent	1,794	27,628	15.4	3,136	44,531	14.2	8,986	169,511	18.9
Elgin	10,322	172,377	16.7	13,548	170,705	12.6	12,985	233,673	18.0
Norfolk	20,538	271,102	13.2	21,191	347,532	16.4	17,038	315,038	18.5
Haldimand	16,718	257,457	15.4	15,654	214,460	13.7	14,476	249,458	17.2
Welland	4,564	73,024	16.0	4,521	71,884	15.9	4,372	73,219	16.7
Totals	56,849	855,479	15.0	59,382	873,754	14.7	61,277	1,104,530	18.0
Lambton	3,056	48,590	15.9	6,827	83,289	12.2	9,216	168,564	18.3
Huron	39,857	876,854	22.0	42,552	914,868	21.5	35,101	789,568	22 5
Bruce	43,307	944,093	21.8	45,376	971,046	21.7	39,533	900,852	22.8
Totals	86,220	1,869,537	21.7	94,755	1,969,203	20.1	83,850	1,858,984	22.2
Grey	47,785	1,041,713	21.8	52,154	886,618	17.0	47,171	1,007,723	21.4
Simcoe	44,519	979,418	22.0	42,961	932,254	21.7	34,560	754,973	21.8
Totals	92,304	2,021,131	21.9	95,115	1,818,872	19.1	81,731	1,762,696	21.6
Middlesex	12,258	236,579	19.3	19,893	244,684	12.3	21,791	416,806	19.1
Oxford	17,673	328,718	18.6	19,294	289,410	15.0	16,597	340,612	20.5
Brant	12,298	168,483	13 7	12,438	205,227	16.5	10,002	194,326	19.4
Perth	25,917	533,890	20.6	27,585	474,462	17.2	24,267	536,989	22.1
Wellington	37,603	721,978	19 2	39,528	747,079	18.9	37,897	835,321	22.0
Waterloo	17,012	323,228	19.0	18,723	451,224	24.1	15,624	351,316	22.5
Dufferin	15,097	326,095	21 6	17,521	322,386	18.4	13,026	271,229	20.8
Totals	137,858	2,638,971	19.1	154,982	2,734,472	17.6	139,204	2,946,599	21.2
Lincoln	5,656	97,849	17.3	6,116	125,378	20.5	5,241	93,211	17.8
Wentworth	12,750	233,325	18.3	11,351	205,453	18.1	11,262	224,146	19.9
Halton	12,359	238,529	19.3	11,387	210,660	18.5	10,899	227,416	20.9
Peel	20,682	409,504	19.8	19,141	426,844	22.3	15,426	320,080	20.7
York	37,283	831,411	22.3	36,643	696,217	19.0	30,360	669,343	22.0
Ontario	34,726	680,630	19.6	31,590	631,800	20.0	28,088	583,925	20.8
Durham	34,677	655,395	18.9	33,052	737,060	22.3	23,928	474,655	19.8
Northumberland	28,782	512,320	17.8	28,043	588,903	21.0	21,746	391,757	18.0
Prince Edward	20,038	288,547	14.4	21,201	404,939	19.1	15,252	276,567	18.1
Totals	205,953	3,947,510	19.1	198,524	4,027,254	20 3	162,202	3,261,100	20.1
Lennox and Addington	9,109	143,011	15.7	12,195	198,779	16.3	9,304	169,202	18.2
Frontenac	10,301	172,027	16.7	10,349	172,828	16.7	10,764	192,601	17.9
Leeds and Grenville	4,029	70,105	17.4	6,203	93,665	15.1	6,077	114,768	18.9
Dundas	775	15,190	19.6	1,359	19,570	14.4	1,561	33,214	21.3
Stormont	1,423	19,922	14.0	2,245	23,797	10.6	2,380	46,500	19.5
Glengarry	3,150	40,005	12.7	4,374	36,304	8.3	5,257	90,510	17 2
Prescott	2,708	48,744	18.0	5,670	39,123	6.9	7,656	124,993	16.3
Russell	2,265	32,616	14.4	3,035	28,226	9.3	3,473	64,675	18.6
Carleton	11,433	194,361	17.0	11,239	182,072	16.2	12,488	264,664	21.2
Renfrew	21,781	383,346	17.6	22,513	454,763	20.2	20,974	429,532	20.5
Lanark	11,762	197,602	16.8	13,152	224,899	17.1	11,585	241,788	20.9
Totals	78,736	1,316,929	16.7	92,334	1,474,026	16.0	91,519	1,772,447	19.4
Victoria	21,779	392,022	18.0	22,362	456,185	20.4	17,157	352,654	20.6
Peterborough	20,133	404,673	20.1	17,417	344,857	19.8	15,775	309,621	19.6
Haliburton	1,889	30,224	16.0	2,287	39,336	17.2	1,735	32,175	18.5
Hastings	21,438	351,583	16.4	21,925	401,228	18.3	19,229	348,760	18.1
Totals	65,239	1,178,502	18.1	63,991	1,241,606	19.4	53,896	1,043,210	19.4
Muskoka	3,670	62,757	17.1	4,209	70,711	16.8	3,108	63,364	20.4
Parry Sound	3,310	69,510	21.0	3,206	65,082	20.3	1,913	49,274	21.1
Nipissing	846	21,488	25.4	821	17,816	21.7	257	5,835	22.7
Algoma	6,756	187,141	27.7	7,413	201,634	27.2	4,634	120,124	25.9
Totals	14,582	340,896	23.4	15,649	355,243	22.7	9,912	229,597	23.2
The Province	738,741	14,168,955	19.2	774,732	14,494,430	18.7	683,591	13,979,163	20 4

AREA AND PRODUCE—CORN.

TABLE XIV. Showing by County Municipalities and groups of Counties the area, produce and yield per acre of Corn for husking and for silo and fodder for the years 1892 and 1893, also the total acreage for 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	For husking.			For silo and fodder.			Total area.		
	Acres.	Bushels in ear.	Bush. per acre.	Acres.	Tons.	Tons per acre.	1893. Acres.	1892. Acres.	1882-93. Acres.
Essex	42,405	3,227,021	76.1	1,329	10,114	7.61	43,734	32,936	32,803
Kent	32,621	2,400,906	73.6	748	6,463	8.64	33,369	29,544	27,254
Elgin	18,212	1,313,085	72.1	1,946	21,231	10.91	20,158	15,387	15,062
Norfolk	12,847	734,848	57.2	1,511	16,515	10.93	14,358	13,727	14,004
Haldimand	1,797	106,203	59.1	712	4,948	6.95	2,509	1,960	2,040
Welland	6,544	419,470	64.1	1,067	11,982	11.23	7,611	5,724	6,402
Totals	114,426	8,201,533	71.7	7,313	71,253	9.74	121,739	99,278	97,565
Lambton	13,344	708,566	53.1	1,628	16,459	10.11	14,972	10,874	8,731
Huron	1,245	75,447	60.6	3,343	39,180	11.72	4,588	3,953	2,316
Bruce	533	31,980	60.0	2,103	21,766	10.35	2,636	2,220	1,096
Totals	15,122	815,993	54.0	7,074	77,405	10.94	22,196	17,047	12,143
Grey	962	45,984	47.8	2.766	26,249	9.49	3,728	3,029	1,191
Simcoe	1,587	81,731	51.5	3,136	37,099	11.83	4,723	3,517	1,470
Totals	2,549	127,715	50.1	5,902	63,348	10.73	8,451	6,546	2,661
Middlesex	14,235	899,652	63.2	4,460	45,804	10.27	18,695	14,159	12,223
Oxford	6,538	380,512	58.2	4,915	60,258	12.26	11,453	10,569	9,503
Brant	4,448	248,643	55.9	1,268	13,745	10.84	5,716	4,570	4,952
Perth	551	30,856	56.0	2,818	33,309	11.82	3,369	3,489	1,412
Wellington	479	27,495	57.4	2,198	24,749	11.26	2,677	2,538	1,082
Waterloo	637	36,946	58.0	986	12,039	12.21	1,623	1,943	1,490
Dufferin	225	10,980	48.8	156	1,872	12.00	381	419	164
Totals	27,113	1,635,084	60.3	16,801	191,776	11.41	43,914	37,687	30,826
Lincoln	6,239	425,500	68.2	997	10,947	10.98	7,236	7,010	6,514
Wentworth	3,093	225,170	72.8	3,319	35,414	10.67	6,412	7,220	5,085
Halton	802	56,942	71.0	1,346	14,819	11.01	2,148	2,374	1,485
Peel	726	43,560	60.0	1,781	20,856	11.71	2,507	2,383	948
York	678	28,813	42.5	3,101	29,894	9.64	3,779	3,473	2,039
Ontario	1,975	87,690	44.4	2,385	27,523	11.54	4,360	4,139	2,969
Durham	2,160	114,912	53.2	1,461	16,597	11.36	3,621	2,768	2,233
Northumberland	4,605	221,040	48.0	2,800	35,168	12 56	7,405	7,893	4,930
Prince Edward	6,064	271,061	44.7	2,217	21,926	9.89	8,281	8,458	6,850
Totals	26,342	1,474,688	56.0	19,407	213,144	10.98	45,749	45,718	33,053
Lennox and Addington	1,608	70,109	43.6	2,368	19,725	8.33	3,976	3,504	2,732
Frontenac	2,024	104,236	51.5	2,866	27,256	9.51	4,890	4,136	2,358
Leeds and Grenville	8,893	549,587	61.8	8,819	89,513	10.15	17,712	16,378	8,211
Dundas	1,858	117,611	63.3	2,214	22,694	10.25	4,072	4,947	2,405
Stormont	1,677	110,682	66.0	1,691	23,573	13.94	3,368	4,155	1,831
Glengarry	809	47,165	58.3	3,015	36,964	12.26	3,824	3,537	1,480
Prescott	2,243	161,272	71.9	1,000	13,310	13.31	3,243	3,136	1,730
Russell	430	16,340	38.0	1,859	28,945	15.57	2,289	1,842	809
Carleton	1,146	45,038	39.3	5,061	58,100	11.48	6,207	5,147	2,443
Renfrew	698	35,598	51.0	817	9,771	11.96	1,515	1,578	748
Lanark	1,097	65,272	59.5	2,784	32,016	11.50	3,881	3,645	1,932
Totals	22,483	1,322,910	58.8	32,494	361,867	11.14	54,977	52,005	26,679
Victoria	412	23,896	58.0	245	2,114	8.63	657	920	652
Peterborough	544	38,080	70.0	1,411	15,267	10.82	1,955	1,279	632
Haliburton	79	5,577	70.6	25	156	6.25	104	174	121
Hastings	7,806	409,815	52.5	4,997	51,519	10.31	12,803	11,649	7,337
Totals	8,841	477,368	54.0	6,678	69,056	10.34	15,519	14,022	8,742
Muskoka	238	10,305	43.3	131	1,193	9.11	369	290	240
Parry Sound	87	3,480	40.0	38	266	7.00	125	148	62
Nipissing	40	1,500	37.5	.....	.....	.....	40	42	16
Algoma	53	2,385	45.0	27	216	8.00	80	83	80
Totals	418	17,670	42.3	196	1,675	8.55	614	563	398
The Province (1893)	217,294	14,072,961	64.8	95,865	1,049,524	10.95	313,159	272,866	212,067
The Province (1892)	181,463	11,229,498	61.9	91,403	948,907	10.38			

AREA AND PRODUCE—BUCKWHEAT.

TABLE XV. Showing by County Municipalities and groups of Counties the area and produce of Buckwheat in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	1,231	23,020	18.7	2,170	45,353	20.9	969	20,101	20.7
Kent	1,590	28,461	17.9	2,102	38,467	18.3	1,088	21,292	19.6
Elgin	2,252	39,635	17.6	2,839	60,755	21.4	1,606	31,188	19.4
Norfolk	5,649	94,338	16.7	5,522	101,053	18.3	4,894	87,459	17.9
Haldimand	756	14,440	19.1	557	8,912	16.0	720	12,101	16.8
Welland	2,839	35,204	12.4	2,027	33,851	16.7	1,982	35,651	18.0
Totals	14,317	235,098	16.4	15,217	288,391	19.0	11,259	207,792	18.5
Lambton	1,359	21,200	15.6	1,175	15,745	13.4	637	11,223	17.6
Huron	894	14,751	16.5	701	19,348	27.6	372	7,052	19.0
Bruce	781	11,559	14.8	738	20,147	27.3	468	8,236	17.6
Totals	3,034	47,510	15.7	2,614	55,240	21.1	1,477	26,511	17.9
Grey	1,323	22,491	17.0	881	21,144	24.0	513	8,936	17.4
Simcoe	3,062	48,992	16.0	2,204	50,692	23.0	793	14,093	17.8
Totals	4,385	71,483	16.3	3,085	71,836	23.3	1,306	23,029	17.6
Middlesex	839	18,122	21.6	1,001	19,520	19.5	582	10,366	17.8
Oxford	536	8,951	16.7	726	12,995	17.9	671	11,547	17.2
Brant	600	11,100	18.5	519	9,757	18.8	650	11,662	17.9
Perth	170	3,400	20.0	270	6,075	22.5	124	2,534	20.4
Wellington	142	3,025	21.3	241	5,423	22.5	204	4,271	20.9
Waterloo	140	2,282	16.3	711	10,665	15.0	160	2,659	16.6
Dufferin	159	3,101	19.5	94	1,880	20.0	114	2,265	19.9
Totals	2,586	49,981	19.3	3,562	66,315	18.6	2,505	45,304	18.1
Lincoln	631	8,771	13.9	1,216	21,037	17.3	778	15,094	19.4
Wentworth	1,695	35,426	20.9	994	22,961	23.1	864	17,235	19.9
Halton	146	3,402	23.3	378	8,505	22.5	181	2,935	16.2
Peel	131	1,441	11.0	345	4,830	14.0	265	4,243	16.0
York	796	15,442	19.4	438	10,205	23.3	345	6,800	19.7
Ontario	5,964	107,352	18.0	3,736	90,411	24.2	1,427	30,417	21.3
Durham	11,636	208,284	17.9	8,585	193,163	22.5	3,388	69,974	20.7
Northumberland	18,807	362,975	19.3	17,109	357,578	20.9	8,353	169,014	20.2
Prince Edward	18,210	298,644	16.4	15,837	300,903	19.0	8,621	172,907	20.1
Totals	58,016	1,041,737	18.0	48,638	1,009,593	20.8	24,222	488,619	20.2
Lennox and Addington	6,261	114,576	18.3	6,968	124,727	17.9	3,826	82,073	21.5
Frontenac	2,885	49,045	17.0	3,246	74,333	22.9	1,932	41,693	21.6
Leeds and Grenville	5,899	97,334	16.5	5,177	84,385	16.3	5,652	112,484	19.9
Dundas	1,794	39,289	21.9	1,424	33,179	23.3	1,679	41,545	24.7
Stormont	2,122	44,986	21.2	2,778	44,448	16.0	2,206	49,714	22.5
Glengarry	2,021	41,228	20.4	1,139	16,402	14.4	1,236	24,867	20.1
Prescott	1,569	36,401	23.2	1,631	25,770	15.8	1,620	30,737	19.0
Russell	555	12,432	22.4	687	13,740	20.0	953	21,370	22.4
Carleton	2,902	55,428	19.1	4,235	93,170	22.0	3,675	75,616	20.6
Renfrew	2,253	42,356	18.8	2,130	54,954	25.8	1,378	28,711	20.8
Lanark	4,580	87,020	19.0	6,162	110,916	18.0	5,498	110,341	20.1
Totals	32,841	620,095	18.9	35,577	676,024	19.0	29,655	619,151	20.9
Victoria	5,742	75,794	13.2	4,636	100,601	21.7	1,650	29,178	17.7
Peterborough	3,182	58,549	18.4	2,375	43,700	18.4	1,349	25,843	19.2
Haliburton	432	6,869	15.9	448	9,453	21.1	307	5,434	17.7
Hastings	8,327	155,715	18.7	7,887	173,514	22.0	4,865	101,061	20.8
Totals	17,683	296,927	16.8	15,346	327,268	21.3	8,171	161,516	19.8
Muskoka	410	7,790	19.0	358	9,057	25.3	357	8,306	23.3
Parry Sound	244	4,270	17.5	184	4,140	22.5	142	2,722	19.2
Nipissing	87	1,740	20.0	117	1,170	10.0	37	754	20.4
Algoma	225	3,825	17.0	406	12,180	30.0	138	3,019	21.9
Totals	966	17,625	18.2	1,065	26,547	24.9	674	14,801	22.0
The Province	133,828	2,380,456	17.8	125,104	2,521,214	20.2	79,269	1,586,723	20.0

AREA AND PRODUCE—BEANS.

TABLE XVI. Showing by County Municipalities and groups of Counties the area and produce of Beans in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	1,733	28,768	16.6	608	9,546	15.7	678	13,329	19.7
Kent	32,440	411,988	12.7	21,884	332,637	15.2	16,531	271,899	16.4
Elgin	2,285	31,762	13.9	1,406	23,621	16.8	1,501	27,640	18.4
Norfolk	789	13,413	17.0	362	6,769	18.7	633	8,742	13.8
Haldimand	407	4,680	11.5	448	7,168	16.0	218	3,390	15.6
Welland	932	11,650	12.5	661	8,990	13.6	837	10,903	13.0
Totals	38,586	502,261	13.0	25,369	388,731	15.3	20,398	335,903	16.5
Lambton	988	12,745	12.9	549	7,027	12.8	461	7,280	15.8
Huron	92	2,024	22.0	88	1,540	17.5	113	2,605	23.1
Bruce	123	1,808	14.7	45	900	20.0	109	1,898	17.4
Totals	1,203	16,577	13.8	682	9,467	13.9	683	11,783	17.3
Grey	275	4,345	15.8	143	3,575	25.0	149	2,567	17.2
Simcoe	347	6,350	18.3	120	2,400	20.0	132	2,338	17.7
Totals	622	10,695	17.2	263	5,975	22.7	281	4,905	17.5
Middlesex	1,007	12,285	12.2	373	6,975	18.7	394	6,175	15.7
Oxford	257	4,061	15.8	314	6,060	19.3	248	4,870	19.6
Brant	15	150	10.0	30	450	15.0	380	4,943	13.0
Perth	27	405	15.0	11	220	20.0	44	976	22.2
Wellington	47	564	12.0	56	1,120	20.0	41	657	16 0
Waterloo	17	204	12.0	28	560	20.0	37	588	15.9
Dufferin	16	200	12.5				24	464	19.3
Totals	1,386	17,869	12 9	812	15,385	18.9	1,168	18,673	16.0
Lincoln	240	2,952	12.3	126	1,688	13.4	172	3,013	17.5
Wentworth	42	672	16.0	42	840	20.0	151	2,729	18.1
Halton	34	680	20.0	10	200	20.0	35	591	16.9
Peel	26	520	20.0	44	880	20.0	49	1,043	21.3
York	240	5,616	23.4	104	1,955	18.8	143	3,149	22.0
Ontario	210	2,604	12.4	144	3,067	21.3	260	4,340	16.7
Durham	313	4,570	14.6	297	5,643	19.0	345	5,683	16 5
Northumberland	871	12,804	14.7	787	12,749	16.2	574	10,092	17.6
Prince Edward	299	5,561	18.6	399	8,379	21.0	410	7,830	19.1
Totals	2,275	35,979	15.8	1,953	35,401	18.1	2,139	38,470	18.0
Lennox and Addington	332	7,304	22.0	286	5,548	19.4	195	3,886	19.9
Frontenac	134	2,144	16.0	133	2,101	15.8	258	5,783	22.4
Leeds and Grenville	321	4,430	13.8	427	7,003	16.4	386	7,497	19.4
Dundas	117	2,527	21.6	204	3,550	17.4	236	5,229	22.2
Stormont	142	3,039	21.4	107	1,691	15.8	165	3,969	24.1
Glengarry	807	13,316	16.5	200	4,000	20.0	186	3,475	18.7
Prescott	239	4,541	19.0	349	5,549	15.9	487	10,940	22.5
Russell	407	7,123	17.5	130	2,275	17.5	216	4,044	18.7
Carleton	473	8,561	18.1	544	12,186	22.4	453	9,357	20.7
Renfrew	575	9,775	17.0	535	11,931	22.3	501	10,315	20.6
Lanark	217	4,166	19.2	142	2,698	19.0	216	4,600	21.3
Totals	3,764	66,926	17.8	3,057	58,532	19.1	3,299	69,095	20.9
Victoria	55	644	11.7	245	5,831	23.8	106	1,892	17.8
Peterborough	170	1,989	11.7	123	2,091	17.0	135	2,094	15.5
Haliburton	43	658	15.3	36	648	18.0	28	515	18.4
Hastings	567	7,598	13.4	552	11,095	20.1	342	6,070	17.7
Totals	835	10,889	13.0	956	19,665	20.6	611	10,571	17.3
Muskoka	101	1,586	15.7	37	555	15.0	47	830	17.7
Parry Sound	28	420	15.0	31	388	12.5	20	350	17.5
Nipissing	21	368	17 5	21	336	16.0	11	208	18.9
Algoma	37	740	20 0	68	1,496	22.0	19	392	20.6
Totals	187	3,114	16.7	157	2,775	17.7	97	1,780	18.4
The Province	48,858	664,310	13.6	33,249	535,931	16.1	28,676	491,180	17.1

AREA AND PRODUCE—HAY AND CLOVER.

TABLE XVII. Showing by County Municipalities and groups of Counties the area and produce of Hay and Clover in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-92; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Tons.	Tons per acre.	Acres.	Tons.	Tons per acre.	Acres.	Tons.	Tons per acre.
Essex	45,410	85,371	1.88	33,846	49,754	1.47	37,457	59,383	1.59
Kent	61,573	114,526	1.86	50,893	89,063	1.75	52,623	82,622	1.57
Elgin	59,423	111,121	1.87	52,841	101,455	1.92	51,283	80,353	1.57
Norfolk	46,457	85,481	1.84	41,244	68,465	1.66	41,404	58,668	1.42
Haldimand	60,768	94,798	1.56	53,063	91,268	1.72	50,565	67,488	1.33
Welland	50,346	82,064	1.63	46,750	84,618	1.81	47,263	66,779	1.41
Totals	323,977	573,361	1.77	278,637	484,623	1.74	280,595	415,293	1.48
Lambton	75,751	133,322	1.76	70,224	124,296	1.77	57,826	87,957	1.52
Huron	124,067	224,561	1.81	113,160	211,609	1.87	100,482	148,816	1.48
Bruce	111,368	179,302	1.61	102,418	176,158	1.72	89,471	118,844	1.33
Totals	311,186	537,185	1.73	285,802	512,063	1.79	247,779	355,617	1.44
Grey	142,310	239,081	1.68	133,039	234,149	1.76	120,331	160,134	1.33
Simcoe	100,552	169,933	1.69	90,279	145,349	1.61	80,438	111,580	1.39
Totals	242,862	409,014	1.68	223,318	379,498	1.70	200,769	271,714	1.35
Middlesex	103,176	213,574	2.07	100,236	181,427	1.81	91,867	147,516	1.61
Oxford	65,583	131,822	2.01	65,151	132,908	2.04	62,942	102,959	1.64
Brant	34,198	65,660	1.92	31,204	64,280	2.06	31,808	49,854	1.57
Perth	80,276	161,355	2.01	73,568	144,193	1.96	68,864	111,289	1.62
Wellington	91,835	191,017	2.08	89,319	175,065	1 96	84,906	135,263	1.59
Waterloo	43,729	84,834	1.94	42,779	88,125	2.06	42,542	67,900	1.60
Dufferin	40,852	74,759	1 83	39,120	61,027	1.56	34,682	48,979	1.41
Totals	459,649	923,021	2.01	441,377	847,025	1.92	417,611	663,760	1.59
Lincoln	43,601	74,122	1.70	39,909	75,428	1.89	40,788	57,755	1.42
Wentworth	50,878	83,949	1.65	47,172	104,250	2.21	45,422	69,659	1.53
Halton	39,046	74,187	1.90	33,164	65,665	1.98	33,740	48,781	1.45
Peel	46,355	93,637	2.02	39,752	75,926	1.91	38,793	59,016	1.52
York	91,436	161,842	1.77	82,267	158,775	1.93	75,372	110,667	1.47
Ontario	61,574	115,759	1.88	53,740	92,433	1.72	53,786	80,132	1.49
Durham	46,807	81,912	1.75	41,847	64,026	1.53	43,758	63,246	1.45
Northumberland	60,535	101,699	1.68	55,776	84,222	1.51	54,573	71,351	1.31
Prince Edward	38,805	59,760	1.54	37,134	60,528	1.63	31,310	43,424	1.39
Totals	479,037	846,867	1.77	430,761	781,253	1.81	417,542	604,031	1.45
Lennox and Addington	67,039	108,604	1.62	60,983	107,940	1.77	51,962	68,166	1.31
Frontenac	69,609	124,600	1.79	64,512	111,606	1.73	63,564	82,574	1.30
Leeds and Grenville	125,186	202,801	1.62	113,912	207,320	1.82	112,655	152,211	1.35
Dundas	40,450	78,878	1.95	36,451	72,902	2.00	35,913	56,739	1.58
Stormont	40,697	78,138	1.92	31,972	47,958	1.50	33,172	50,957	1.54
Glengarry	44,716	71,546	1.60	38,875	66,476	1.71	37,458	57,823	1.54
Prescott	50,321	102,152	2.03	41,372	67,850	1.64	35,613	53,571	1.50
Russell	23,485	49,084	2.09	21,256	37,198	1.75	18,812	26,914	1.43
Carleton	70,385	151,328	2.15	66,052	99,078	1.50	60,993	85,249	1.40
Renfrew	73,826	115,907	1.57	64,503	80,629	1.25	63,732	71,512	1.12
Lanark	79,279	138,738	1.75	74,242	121,757	1.64	62,277	87,105	1.40
Totals	684,993	1,221,776	1.78	614,130	1,020,714	1.66	576,151	792,821	1.38
Victoria	50,375	89,668	1.78	40,897	61,346	1.50	39,784	49,687	1.25
Peterborough	42,551	65,103	1.53	42,163	59,871	1.42	39,308	46,380	1.18
Haliburton	11,832	18,458	1.56	12,082	15,827	1.31	10,392	11,257	1.08
Hastings	88,829	158,116	1.78	78,936	113,668	1.44	71,331	92,780	1.30
Totals	193,587	331,345	1.71	174,078	250,712	1.44	160,815	200,104	1.24
Muskoka	23,352	40,632	1.74	22,505	34,208	1.52	21,079	26,566	1 26
Parry Sound	20,473	32,143	1.57	19,513	29,270	1.50	12,224	14,817	1.21
Nipissing	6,040	9,302	1.54	5,239	7,859	1.50	1,702	2,367	1.39
Algoma	21,738	38,911	1.79	20,007	37,613	1.88	12,667	17,553	1.39
Totals	71,603	120,988	1.69	67,264	108,950	1.62	47,672	61,303	1.29
The Province	2,766,894	4,963,557	1.79	2,515,367	4,384,838	1.74	2,348,934	3,364,643	1.43

AREA AND PRODUCE—POTATOES.

TABLE XVIII. Showing by County Municipalities and groups of Counties the area and produce of Potatoes in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	2,776	220,692	79.5	3,348	192,845	57.6	2,811	268,956	95.7
Kent	2,943	234,557	79.7	2,770	211,905	76.5	3,242	383,850	118.4
Elgin	2,543	224,293	88.2	2,506	151,362	60.4	2,747	273,222	99.5
Norfolk	3,122	247,575	79.3	2,898	210,105	72.5	3,256	321,331	98.7
Haldimand	1,305	117,450	90.0	1,198	63,254	52.8	1,406	144,338	102.7
Welland	2,625	246,750	94.0	2,195	165,503	75.4	2,341	217,819	93.0
Totals	15,314	1,291,317	84.3	14,915	994,974	66.7	15,803	1,609,516	101.8
Lambton	2,744	163,542	59.6	3,077	129,849	42.2	2,993	284,876	95.2
Huron	4,232	416,852	98.5	4,713	471,300	100.0	4,970	598,846	120.5
Bruce	3,640	291,928	80.2	4,105	342,768	83.5	4,616	532,482	115.4
Totals	10,616	872,322	82.2	11,895	943,917	79.4	12,579	1,416,204	112.6
Grey	5,907	540,491	91.5	6,344	502,445	79.2	6,753	835,886	123.8
Simcoe	7,338	753,613	102.7	7,343	740,174	100.8	6,996	878,768	125.6
Totals	13,245	1,294,104	97.7	13,687	1,242,619	90.8	13,749	1,714,654	124.7
Middlesex	4,778	416,642	87.2	4,126	205,062	49.7	5,409	564,109	104.3
Oxford	2,790	254,727	91.3	2,753	196,564	71.4	3,191	348,859	109.3
Brant	2,286	211,226	92.4	1,871	144,254	77.1	2,200	242,425	110.2
Perth	3,395	321,167	94.6	3,679	293,584	79.8	3,675	415,330	113.0
Wellington	4,988	547,682	109.8	5,381	575,767	107.0	5,776	710,877	123.1
Waterloo	2,865	310,280	108.3	3,004	288,384	96.0	2,888	346,613	120.0
Dufferin	3,107	388,686	125.1	3,150	316,260	100.4	3,177	437,941	137.8
Totals	24,209	2,450,410	101.2	23,964	2,019,875	84.3	26,316	3,066,154	116.5
Lincoln	1,736	154,678	89.1	1,550	110,980	71.6	1,847	179,286	97.1
Wentworth	3,308	372,812	112.7	3,302	284,302	86.1	3,590	418,615	116.6
Halton	1,469	167,025	113.7	1,392	99,250	71.3	1,573	172,585	109.7
Peel	2,896	262,667	90.7	3,006	269,338	89.6	2,970	309,130	104.1
York	6,449	596,533	92.5	6,284	573,101	91.2	7,405	784,166	105.9
Ontario	4,402	442,841	100.6	4,288	466,963	108.9	4,250	526,934	124.0
Durham	3,100	348,130	112.3	3,091	325,791	105.4	3,145	393,324	125.1
Northumberland	4,255	416,565	97.9	4,233	550,290	130.0	4,334	479,264	110.6
Prince Edward	2,103	149,523	71.1	2,225	135,058	60.7	2,340	213,424	91.2
Totals	29,718	2,910,774	97.9	29,371	2,815,073	95.8	31,454	3,476,728	110.5
Lennox and Addington	2,584	190,699	73.8	2,891	195,432	67.6	3,159	343,533	108.7
Frontenac	3,201	266,003	83.1	3,639	268,194	73.7	3,944	395,315	100.2
Leeds and Grenville	6,806	539,716	79.3	6,621	386,004	58.3	7,190	811,438	112.9
Dundas	1,920	103,296	53.8	2,170	106,330	49.0	2,360	310,257	131.5
Stormont	1,666	90,630	54.4	1,966	81,392	41.4	2,017	220,345	109.2
Glengarry	1,978	91,186	46.1	2,351	110,027	46.8	2,392	253,199	105.9
Prescott	2,358	190,055	80.6	2,508	135,432	54.0	2,394	299,333	125.0
Russell	1,389	102,786	74.0	1,271	80,454	63.3	1,480	151,178	102.1
Carleton	5,534	301,603	54.5	5,460	364,182	66.7	5,982	743,922	124.4
Renfrew	4,129	384,823	93.2	3,797	427,163	112.5	3,853	561,091	145.6
Lanark	3,310	298,562	90.2	3,767	385,741	102.4	3,561	481,608	135.2
Totals	34,875	2,559,359	73.4	36,441	2,540,351	69.7	38,332	4,571,219	119.3
Victoria	2,863	304,051	106.2	2,850	288,420	101.2	3,114	398,776	128.1
Peterborough	2,677	312,941	116.9	2,742	276,668	100.9	2,734	326,035	119.3
Haliburton	666	65,534	98.4	656	87,642	133.6	678	90,670	133.7
Hastings	4,749	430,269	90.6	5,026	468,423	93.2	5,603	653,236	116.6
Totals	10,955	1,112,785	101 6	11,274	1,121,153	99.4	12,129	1,468,717	121.1
Muskoka	1,111	100,657	90.6	1,325	156,880	118.4	1,338	179,894	134.4
Parry Sound	1,051	119,499	113.7	1,138	173,090	152.1	868	130,147	149.9
Nipissing	422	52,750	125.0	564	94,019	166.7	167	25,596	153.3
Algoma	1,085	147,235	135.7	1,129	187,866	166.4	831	141,826	170.7
Totals	3,669	420,141	114.5	4,156	611,855	147.2	3,204	477,463	149.0
The Province	142,601	12,911,212	90.5	145,703	12,289,817	84.3	153,566	17,800,655	115.9

AREA AND PRODUCE—MANGEL-WURZELS.

TABLE XIX. Showing by County Municipalities and groups of Counties the area and produce of Mangel-wurzels in Ontario in the years 1892 and 1893, with the yeaaly average or the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	568	254,464	448	486	201,204	414	257	105,163	409
Kent	283	110,936	392	314	122,460	390	313	129,595	414
Elgin	317	130,921	413	379	167,518	442	312	132,067	423
Norfolk	293	128,627	439	184	77,096	419	227	90,955	401
Haldimand	128	53,760	420	226	63,732	282	174	57,784	332
Welland	61	24,156	396	106	49,184	464	142	59,820	421
Totals	1,650	702,864	426	1,695	681,194	402	1,425	575,384	404
Lambton	790	277,290	351	357	155,295	435	443	178,372	403
Huron	2,087	926,628	444	1,878	989,706	527	1,648	768,824	467
Bruce	504	186,480	370	456	245,784	539	452	192,987	427
Totals	3,381	1,390,398	411	2,691	1,390,785	517	2,543	1,140,183	448
Grey	531	199,656	376	359	178,782	498	391	169,929	435
Simcoe	563	221,259	393	455	216,580	476	598	245,658	411
Totals	1,094	420,915	385	814	395,362	486	989	415,587	420
Middlesex	1,590	554,910	349	1,159	449,692	388	1,430	620,723	434
Oxford	946	396,374	419	1,170	580,320	496	1,263	597,913	473
Brant	428	169,488	396	345	144,555	419	364	178,718	491
Perth	2,198	894,586	407	2,029	854,209	421	1,779	826,233	464
Wellington	1,170	530,010	453	1,339	705,653	527	1,036	469,297	453
Waterloo	438	197,538	451	578	284,376	492	503	222,114	442
Dufferin	105	45,675	435	82	49,200	600	123	52,023	423
Totals	6,875	2,788,581	406	6,702	3,068,005	458	6,498	2,967,021	457
Lincoln	179	77,865	435	280	120,680	431	242	96,676	399
Wentworth	468	203,112	434	486	239,598	493	449	218,661	487
Halton	433	216,384	448	471	203,943	433	444	207,090	466
Peel	438	158,994	363	625	324,375	519	464	186,840	403
York	1,604	673,680	420	1,796	858,488	478	1,732	786,642	454
Ontario	604	237,976	394	581	320,712	552	748	342,036	457
Durham	551	273,847	497	874	465,842	533	509	233,033	458
Northumberland	496	191,456	386	591	302,592	512	476	207,421	436
Prince Edward	233	38,678	166	151	52,850	350	136	37,686	277
Totals	5,056	2,071,992	410	5,855	2,889,080	493	5,200	2,316,085	445
Lennox and Addington	99	37,125	375	83	30,461	367	121	42,641	352
Frontenac	147	56,007	381	142	60,350	425	176	63,735	362
Leeds and Grenville	191	67,614	354	412	147,084	357	241	98,684	409
Dundas	112	29,120	260	156	74,880	480	112	47,062	420
Stormont	50	19,150	383	29	8,120	280	36	13,481	374
Glengarry	82	19,762	241	97	41,710	430	75	26,865	358
Prescott	54	13,068	242	118	42,834	363	84	30,593	364
Russell	177	77,526	438	217	73,780	340	99	37,631	380
Carleton	305	97,295	319	414	144,900	350	558	207,016	371
Renfrew	146	46,574	319	227	88,530	390	117	42,232	361
Lanark	292	111,252	381	213	90,099	423	161	64,497	401
Totals	1,655	574,493	347	2,103	802,748	381	1,780	674,437	379
Victoria	664	233,728	352	1,037	648,125	625	608	293,934	483
Peterborough	439	176,039	401	397	167,137	421	320	121,784	381
Haliburton	13	5,850	450	8	2,600	325	7	2,631	376
Hastings	588	177,576	302	626	272,936	436	463	161,474	349
Totals	1,704	593,193	348	2,068	1,090,798	527	1,398	579,823	415
Muskoka	43	13,932	324	46	15,502	337	49	13,618	278
Parry Sound	18	9,000	500	16	8,800	550	11	3,576	325
Nipissing	5	2,000	400	3	1,200	400	1	388	388
Algoma	38	15,200	400	28	7,000	250	23	6,731	293
Totals	104	40,132	386	93	32,502	349	84	24,313	289
The Province	21,519	8,582,568	399	22,026	10,350,474	470	19,917	8,692,833	436

AREA AND PRODUCE—CARROTS.

TABLE XX. Showing by County Municipalities and groups of Counties the area and produce of Carrots in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	78	26,832	344	100	24,300	243	90	23,350	259
Kent	132	44,484	337	147	42,483	289	154	45,733	297
Elgin	148	53,872	364	216	71,064	329	165	54,799	332
Norfolk	133	50,141	377	240	69,840	291	157	46,030	294
Haldimand	62	15,004	242	119	33,677	283	88	23,057	262
Welland	97	32,786	338	73	26,864	368	82	23,934	292
Totals	650	223,119	343	895	268,228	300	736	216,963	295
Lambton	325	86,450	266	247	59,774	242	215	62,797	292
Huron	474	158,316	334	292	112,128	384	479	184,800	386
Bruce	267	88,911	333	305	161,650	530	299	103,415	346
Totals	1,066	333,677	313	844	333,552	395	993	351,012	353
Grey	366	119,682	327	497	209,237	421	513	188,960	368
Simcoe	461	157,662	342	458	166,254	363	558	202,109	362
Totals	827	277,344	335	955	375,491	393	1,071	391,069	365
Middlesex	546	157,248	288	370	106,930	289	490	159,859	326
Oxford	219	75,774	346	208	94,224	453	328	132,078	403
Brant	176	58,256	331	100	35,600	356	194	80,173	413
Perth	257	102,286	398	243	87,480	360	383	148,544	388
Wellington	250	94,250	377	345	155,250	450	303	105,485	348
Waterloo	217	85,715	395	292	131,984	452	316	131,329	416
Dufferin	104	34,424	331	164	62,812	383	138	46,957	340
Totals	1,769	607,953	344	1,722	674,280	392	2,152	804,425	374
Lincoln	104	34,112	328	171	63,270	370	118	38,104	323
Wentworth	144	58,464	406	114	54,606	479	220	83,012	377
Halton	88	27,456	312	109	39,349	361	115	44,837	390
Peel	224	67,200	300	246	96,432	392	283	97,444	344
York	376	107,912	287	377	158,717	421	640	259,051	405
Ontario	258	85,398	331	287	121,401	423	452	175,326	388
Durham	242	101,156	418	366	178,974	489	455	173,713	382
Northumberland	234	73,476	314	337	139,518	414	275	94,805	345
Prince Edward	46	5,750	125	45	16,515	367	61	13,268	218
Totals	1,716	560,924	327	2,052	868,782	423	2,619	979,560	374
Lennox and Addington	47	18,800	400	46	11,362	247	57	16,771	294
Frontenac	103	29,973	291	136	51,680	380	169	45,321	268
Leeds and Grenville	213	58,788	276	294	112,602	383	199	63,440	319
Lundas	145	38,860	268	275	144,375	525	96	38,022	396
Stormont	228	75,924	333	57	16,986	298	61	17,981	295
Glengarry	154	41,888	272	113	35,030	310	64	17,219	269
Prescott	84	25,788	307	121	37,873	313	58	16,822	290
Russell	196	66,248	338	222	63,936	288	157	50,420	321
Carleton	337	110,873	329	374	114,818	307	540	175,897	326
Renfrew	199	45,372	228	267	85,707	321	128	38,513	301
Lanark	207	60,237	291	291	98,358	338	159	53,957	339
Totals	1,913	572,751	299	2,196	772,727	352	1,688	534,363	317
Victoria	187	48,433	259	187	95,744	512	275	102,182	372
Peterborough	573	186,225	325	573	269,883	471	377	129,301	343
Haliburton	19	5,947	313	9	2,817	313	21	6,299	300
Hastings	234	67,158	287	169	51,207	303	175	50,565	289
Totals	1,013	307,763	304	938	419,651	447	848	288,347	340
Muskoka	141	38,493	273	163	58,354	358	94	26,707	284
Parry Sound	98	25,676	262	92	31,096	338	46	12,542	273
Nipissing	8	2,000	250	16	4,800	300	3	813	271
Algoma	87	21,750	250	68	20,400	300	39	10,222	262
Totals	334	87,919	263	339	114,650	338	182	50,284	276
The Province	9,288	2,971,450	320	9,941	3,827,361	385	10,289	3,616,023	351

AREA AND PRODUCE—TURNIPS.

TABLE XXI. Showing by County Municipalities and groups of Counties the area and produce of Turnips in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the yield per acre.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.	Acres.	Bushels.	Bush. per acre.
Essex	446	151,640	340	426	105,222	247	241	68,024	282
Kent	361	105,773	293	367	126,615	345	353	122,036	346
Elgin	452	181,252	401	401	134,335	335	373	135,044	362
Norfolk	1,415	570,245	403	1,551	578,523	373	1,104	423,560	384
Haldimand	113	38,872	344	130	42,640	328	122	36,558	300
Welland	325	126,750	390	220	73,260	333	186	63,800	343
Totals	3,112	1,174,532	377	3,095	1,060,595	343	2,379	849,022	357
Lambton	829	198,960	240	426	181,476	426	375	121,858	325
Huron	8,157	3,213,858	394	8,053	3,809,069	473	6,977	2,861,753	410
Bruce	7,990	2,732,580	342	7,774	4,633,304	596	6,091	2,557,133	420
Totals	16,976	6,145,398	362	16,253	8,623,849	531	13,443	5,540,744	412
Grey	12,013	4,336,693	361	10,231	4,890,418	478	9,463	3,917,221	414
Simcoe	6,470	2,368,020	366	5,866	2,721,824	464	3,925	1,656,931	422
Totals	18,483	6,704,713	363	16,097	7,612,242	473	13,388	5,574,152	416
Middlesex	2,912	1,025,024	352	2,168	904,056	417	1,818	688,847	379
Oxford	7,157	3,421,046	478	6,531	3,298,155	505	5,674	2,545,432	449
Brant	3,746	1,715,668	458	3,708	1,590,732	429	2,938	1,355,735	461
Perth	5,800	2,349,000	405	5,531	2,660,411	481	4,861	1,989,035	409
Wellington	14,788	6,551,084	443	13,303	6,984,075	525	13,144	5,812,678	442
Waterloo	6,149	2,779,348	452	5,739	3,012,975	525	5,206	2,187,534	420
Dufferin	3,177	1,509,075	475	3,453	1,647,081	477	2,596	1,070,604	412
Totals	43,729	19,350,245	443	40,433	20,097,485	497	36,237	15,649,865	432
Lincoln	301	123,109	409	282	108,570	385	244	88,165	361
Wentworth	2,992	1,271,600	425	2,757	1,557,705	565	2,566	1,225,782	478
Halton	2,196	1,029,924	469	1,937	823,225	425	1,788	805,956	451
Peel	1,830	841,800	460	1,637	826,685	505	1,454	585,630	403
York	4,873	2,071,025	425	4,987	2,279,059	457	3,737	1,539,954	412
Ontario	14,161	6,967,212	492	14,590	7,543,030	517	12,387	5,385,244	435
Durham	6,458	3,254,832	504	6,072	3,339,600	550	5,414	2,448,763	452
Northumberland	4,797	1,899,612	396	4,460	2,359,340	529	3,478	1,433,371	412
Prince Edward	94	20,586	219	69	27,600	406	111	27,329	246
Totals	37,702	17,479,700	464	36,791	18,864,814	513	31,179	13,540,194	434
Lennox and Addington	164	50,184	306	166	56,440	340	152	40,622	267
Frontenac	361	125,267	347	324	132,516	409	395	117,378	297
Leeds and Grenville	516	167,184	324	471	176,625	375	316	115,524	366
Dundas	101	30,603	303	66	34,650	525	68	21,881	322
Stormont	98	26,460	270	23	5,175	225	82	22,589	275
Glengarry	205	54,120	264	241	130,622	542	69	28,127	408
Prescott	287	97,006	338	214	75,756	354	137	51,492	376
Russell	688	344,000	500	605	277,090	458	384	163,983	427
Carleton	1,845	684,495	371	1,738	646,536	372	1,602	590,890	369
Renfrew	655	205,670	314	754	279,734	371	641	217,480	339
Lanark	736	276,000	375	725	292,175	403	531	198,867	375
Totals	5,656	2,060,989	364	5,327	2,107,319	396	4,377	1,568,833	358
Victoria	4,520	1,663,360	368	4,686	2,422,662	517	3,565	1,412,384	396
Peterborough	2,486	1,066,494	429	2,539	1,183,174	466	1,518	593,839	391
Haliburton	219	74,022	338	296	92,648	313	305	88,688	291
Hastings	1,509	587,001	389	1,338	496,398	371	976	305,211	313
Totals	8,734	3,390,877	388	8,859	4,194,882	474	6,364	2,400,122	377
Muskoka	751	232,059	309	851	311,466	366	950	304,410	320
Parry Sound	822	209,610	255	949	291,343	307	725	224,718	310
Nipissing	150	37,500	250	219	71,175	325	60	19,506	325
Algoma	489	189,732	388	753	306,471	407	536	189,251	353
Totals	2,212	668,901	302	2,772	980,455	354	2,271	737,885	325
The Province	136,604	56,975,355	417	129,627	63,511,641	490	109,638	45,860,817	418

RATIOS OF AVERAGE PRODUCTION.

TABLE XXII. Showing by County Municipalities and groups of Counties the per cent. ratios of total yields in 1893 to average of total yields for the twelve years 1882-1893.

Counties.	Fall wheat.	Spring wheat.	Barley.	Oats.	Rye.	Peas.	Buckwheat.	Beans.	Potatoes.	Mangel-wurzels.	Carrots.	Turnips.	Hay and clover.
Essex	106	19	101	105	82	85	115	216	82	242	115	223	144
Kent	109	30	78	90	123	16	134	152	61	86	97	87	139
Elgin	109	2	91	83	121	74	127	115	82	99	98	134	138
Norfolk	107	37	33	72	50	86	108	153	77	141	109	135	146
Haldimand	100	17	43	91	65	103	119	138	81	93	65	106	140
Welland	73	2	69	65	85	100	99	107	113	40	137	199	123
Group	104	20	64	87	73	77	113	150	80	122	103	138	138
Lambton	126	11	52	81	68	29	189	175	57	155	138	163	152
Huron	90	40	56	117	56	111	209	78	70	121	86	112	151
Bruce	70	47	53	105	50	105	140	95	55	97	86	107	151
Group	93	37	54	105	56	101	179	141	62	122	95	111	151
Grey	61	36	66	120	110	103	252	169	65	117	63	111	149
Simcoe	82	55	76	117	63	130	348	272	86	90	78	143	152
Group	75	46	72	119	73	115	310	218	75	101	71	120	151
Middlesex	104	13	57	85	57	57	175	199	74	89	98	149	148
Oxford	124	10	51	93	92	97	78	83	73	66	57	134	128
Brant	82	94	55	72	83	87	95	3	87	95	73	127	132
Perth	101	27	64	117	178	99	134	41	77	108	69	118	145
Wellington	68	81	68	104	136	86	71	86	77	113	89	113	141
Waterloo	106	47	71	105	112	92	86	35	90	89	65	127	125
Dufferin	45	78	81	149	33	120	137	43	89	88	73	141	153
Group	99	54	64	103	92	90	110	96	80	94	76	124	139
Lincoln	83	3	43	81	163	105	58	98	86	81	90	140	128
Wentworth	103	11	51	84	45	104	206	25	89	93	70	104	121
Halton	108	23	47	94	87	105	116	115	97	104	61	128	152
Peel	101	52	61	113	68	128	34	50	85	85	69	144	159
York	93	37	56	99	65	124	227	178	76	86	42	134	146
Ontario	67	49	52	101	55	117	353	60	84	70	49	129	144
Durham	124	30	57	103	58	138	298	80	89	115	58	129	130
Northumberland	117	35	42	91	80	131	215	127	87	92	78	132	143
Prince Edward	152	26	30	70	53	104	173	71	70	103	43	75	138
Group	99	39	51	97	66	121	213	94	84	89	57	129	140
Lennox and Addington	161	50	21	87	35	85	140	188	56	87	112	124	159
Frontenac	23	58	29	107	60	89	118	37	67	88	66	107	151
Leeds and Grenville	75	58	53	87	49	61	87	59	67	69	93	145	133
Dundas	44	49	29	90	32	46	95	48	33	62	102	140	139
Stormont	25	71	105	84	26	43	90	77	41	142	422	117	153
Glengarry	35	53	88	87	156	44	166	383	36	74	243	192	124
Prescott	235	72	120	98	145	39	118	42	63	43	153	188	191
Russell	24	43	105	59	66	50	58	176	68	206	131	210	182
Carleton	60	68	68	71	38	73	73	91	41	47	63	116	178
Renfrew	58	85	59	101	80	89	148	95	69	110	118	95	162
Lanark	54	77	67	103	34	82	79	91	62	172	112	139	159
Group	74	68	45	88	52	74	100	97	56	85	107	131	154
Victoria	42	49	55	115	57	111	260	34	76	80	47	117	180
Peterborough	78	42	38	105	103	131	227	95	96	145	144	180	140
Haliburton	81	74	43	103	43	94	126	128	72	222	94	83	164
Hastings	100	52	31	99	50	101	154	125	66	110	133	192	170
Group	77	48	42	107	62	113	184	103	76	102	107	141	166
Muskoka	30	47	134	113	92	99	94	191	56	102	144	76	153
Parry Sound	138	68	110	151	84	173	157	120	92	252	205	93	217
Nipissing	304	349	348	274	139	368	231	177	206	515	246	192	393
Algoma	127	71	154	153	63	156	127	189	104	226	213	100	222
Group	121	71	141	140	84	148	119	175	88	165	175	91	197
The Province	96	50	55	99	63	101	150	135	73	99	82	124	148

RATIOS OF AVERAGE YIELDS PER ACRE.

TABLE XXIII. Showing by County Municipalities and groups of Counties the per cent. ratios of average yields per acre in 1893, to average yields per acre for twelve years 1882-93.

Counties.	Fall wheat.	Spring wheat.	Barley.	Oats.	Rye.	Peas.	Buckwheat.	Beans.	Potatoes.	Mangel-wurzels.	Carrots.	Turnips.	Hay and clover.
Essex	93	84	93	88	86	99	90	84	83	110	133	121	118
Kent	102	91	82	79	88	81	91	77	67	95	113	85	118
Elgin	102	97	83	81	97	93	91	76	89	98	110	111	119
Norfolk	91	87	76	76	94	71	93	123	80	109	128	105	130
Haldimand	92	62	71	82	94	90	114	74	88	127	92	115	117
Welland	74	41	87	70	69	96	69	96	101	94	116	114	116
Group	96	80	82	81	95	83	89	79	83	105	116	106	120
Lambton	97	57	63	68	102	87	89	82	63	87	91	74	116
Huron	100	89	91	97	76	98	87	95	82	95	87	96	122
Bruce	89	82	88	94	77	96	84	84	69	87	96	81	121
Group	97	82	82	90	82	98	88	80	73	92	89	88	120
Grey	81	89	94	98	92	102	98	92	74	86	89	87	126
Simcoe	85	83	91	92	80	101	90	103	82	96	94	87	122
Group	84	86	92	96	83	101	93	98	78	92	92	87	124
Middlesex	95	76	79	81	84	101	121	78	84	80	88	93	129
Oxford	103	80	72	86	103	91	97	81	84	89	86	106	123
Brant	83	82	74	73	86	71	103	77	84	81	80	99	122
Perth	107	75	84	94	128	93	98	68	84	88	103	99	124
Wellington	102	88	89	93	101	87	102	75	89	100	108	100	131
Waterloo	102	80	80	86	106	84	98	75	90	102	95	108	121
Dufferin	88	98	96	102	73	104	98	65	91	103	97	115	130
Group	99	87	83	89	97	90	107	81	87	89	92	103	126
Lincoln	83	62	72	77	96	97	72	70	92	109	102	113	120
Wentworth	102	76	76	81	83	92	105	88	97	89	108	89	108
Halton	103	71	76	86	88	92	144	118	104	96	80	104	131
Peel	101	67	86	91	88	96	69	94	87	90	87	114	133
York	97	71	84	85	92	101	98	106	87	93	71	103	120
Ontario	87	66	78	85	92	94	85	74	81	86	85	113	126
Durham	96	62	76	91	89	95	86	88	90	109	109	112	121
Northumberland	92	54	67	81	97	99	96	84	89	89	91	96	128
Prince Edward	86	70	68	72	91	80	82	97	78	60	57	89	111
Group	96	65	79	85	93	95	89	88	89	92	87	107	122
Lennox and Addington	112	76	74	78	95	86	85	111	68	107	136	115	124
Frontenac	103	78	87	90	82	93	79	71	83	105	109	117	138
Leeds and Grenville	99	82	70	82	82	92	83	71	70	87	87	89	120
Dundas	117	69	74	84	76	92	89	97	41	62	68	94	123
Stormont	98	74	81	81	76	72	94	89	50	102	113	98	125
Glengarry	94	74	91	86	93	74	101	88	44	67	101	65	104
Prescott	122	88	98	91	83	110	122	84	64	66	106	90	135
Russell	98	65	85	61	74	77	100	94	72	115	105	117	146
Carleton	133	77	73	75	83	80	93	87	44	86	101	101	154
Renfrew	119	79	90	95	84	86	90	83	64	88	76	93	140
Lanark	107	94	75	87	96	80	95	90	67	95	86	100	125
Group	107	80	82	83	85	86	90	85	62	92	94	102	129
Victoria	100	69	80	88	76	87	75	66	83	73	70	93	142
Peterborough	100	63	77	88	94	103	96	75	98	105	95	110	130
Haliburton	102	82	87	92	86	86	90	83	74	120	104	116	144
Hastings	93	79	72	88	96	91	90	76	78	87	99	124	137
Group	96	69	78	89	94	93	85	75	84	84	89	103	138
Muskoka	105	89	87	98	90	84	82	89	67	117	96	97	138
Parry Sound	101	98	96	97	79	100	91	86	76	154	96	82	130
Nipissing	114	102	96	94	84	112	98	93	82	103	92	77	111
Algoma	110	87	91	92	72	107	78	97	79	137	95	110	129
Group	110	90	92	96	82	101	83	91	77	134	95	93	131
The Province	96	77	82	88	90	94	89	80	78	92	91	100	125

ACREAGE UNDER CROP; ALSO PASTURE AND ORCHARD.

TABLE XXIV. Showing by County Municipalities and groups of Counties in Ontario the total area under crop enumerated in Tables VIII-XXI for the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the area in Pasture and in Orchard and Garden for the same period.

Counties.	Acres under crop.			Pasture.		Orchard and Garden.		
	1893.	1892.	1882-93.	1893.	1892.	1893.	1892.	1882-93.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Essex	180,330	165,351	150,199	30,457	30,535	7,053	6,905	6,204
Kent	247,067	233,509	216,770	53,403	51,021	9,065	9,822	7,883
Elgin	185,864	180,404	170,679	67,009	65,742	7,481	7,319	7,088
Norfolk	164,755	163,119	156,683	38,174	34,982	6,890	6,986	7,580
Haldimand	154,329	150,742	143,559	35,066	33,732	4,763	4,566	4,548
Welland	113,783	109,704	111,000	23,448	22,553	6,862	6,814	6,800
Totals	1,046,128	1,002,829	948,890	247,557	238,565	42,114	42,412	40,103
Lambton	212,500	203,019	180,912	90,204	79,181	7,376	7,378	6,533
Huron	362,241	362,943	338,817	155,635	147,948	9,359	8,921	8,629
Bruce	295,230	303,668	281,142	130,419	122,938	5,698	6,516	5,800
Totals	869,971	869,630	800,871	376,258	350,067	22,433	22,815	20,962
Grey	377,338	371,676	361,710	145,538	143,174	7,609	7,178	7,206
Simcoe	356,318	361,863	318,167	82,823	79,592	5,669	5,173	4,846
Totals	733,656	733,539	679,877	228,361	222,766	13,278	12,351	12,052
Middlesex	316,630	320,720	307,090	177,838	167,633	10,263	10,384	10,393
Oxford	225,103	223,896	218,930	87,895	82,489	8,113	7,900	8,297
Brant	122,187	123,172	120,932	26,706	26,725	4,053	3,882	4,305
Perth	253,491	249,444	236,294	86,613	83,833	5,115	4,997	4,874
Wellington	298,141	301,362	297,088	85,787	79,876	4,946	5,018	4,852
Waterloo	177,455	179,010	167,648	31,352	26,854	5,413	4,949	5,155
Dufferin	142,211	144,946	128,998	39,188	37,178	1,390	1,468	1,493
Totals	1,535,218	1,542,550	1,476,980	535,379	504,588	39,293	38,598	39,369
Lincoln	103,733	104,343	102,003	21,084	21,658	10,049	9,155	8,215
Wentworth	147,506	145,570	143,912	32,111	31,079	9,465	9,795	9,133
Halton	111,298	112,945	108,066	30,088	29,504	5,280	4,826	4,884
Peel	173,800	171,652	165,395	36,553	32,786	4,463	4,516	4,261
York	307,926	317,836	303,388	50,934	53,120	6,823	6,805	7,392
Ontario	253,999	258,093	249,113	54,080	54,631	5,909	5,319	5,294
Durham	204,302	210,768	204,284	42,692	43,738	3,845	3,436	3,704
Northumberland	228,070	233,622	219,604	64,581	60,976	7,210	6,752	6,541
Prince Edward	129,504	141,653	131,253	34,925	32,751	5,671	5,671	6,021
Totals	1,660,138	1,696,482	1,627,018	367,048	360,243	58,715	56,275	55,445
Lennox and Addington	133,361	139,019	139,434	56,503	53,549	3,005	2,607	2,766
Frontenac	140,133	137,681	140,927	64,641	65,504	2,168	1,818	2,143
Leeds and Grenville	255,424	252,392	240,616	142,926	134,000	2,656	2,479	3,015
Dundas	87,891	91,849	86,989	39,824	36,385	1,276	1,224	1,201
Stormont	83,067	79,554	74,249	38,202	38,125	558	446	906
Glengarry	95,625	95,389	89,312	44,792	44,289	580	666	592
Prescott	101,454	101,534	88,837	41,363	38,374	240	233	282
Russell	54,458	54,963	51,012	21,710	19,838	175	223	146
Carleton	187,781	200,432	186,236	68,736	72,721	878	887	568
Renfrew	183,868	178,999	167,793	68,937	62,133	422	281	480
Lanark	167,371	172,112	148,957	107,935	108,313	1,198	822	1,050
Totals	1,490,433	1,503,724	1,414,362	695,576	673,231	13,156	11,686	13,149
Victoria	186,039	194,315	176,307	46,737	39,068	1,796	2,002	1,775
Peterborough	145,807	149,750	143,543	53,864	48,125	1,871	2,000	1,934
Haliburton	22,645	23,666	20,848	6,938	6,064	145	199	106
Hastings	227,378	225,380	222,329	91,975	91,132	5,150	5,305	5,369
Totals	581,869	593,111	563,027	199,514	184,389	8,962	9,416	9,184
Muskoka	42,732	43,144	38,878	10,951	9,669	393	336	377
Parry Sound	37,840	37,773	24,498	8,993	7,553	195	32	43
Nipissing	10,312	10,295	3,158	2,668	1,813	7	.....	3
Algoma	46,315	47,129	31,679	9,875	9,156	514	177	193
Totals	137,199	138,341	98,213	32,487	28,191	1,109	545	616
The Province	8,054,612	8,030,206	7,609,238	2,682,180	2,562,040	199,060	194,098	190,880

RATIOS OF AREAS UNDER CROP.

TABLE XXV. Showing by County Municipalities and groups of Counties the number of acres under the various crops in Ontario in 1893 per 1,000 acres of cleared land.

Counties.	Fall wheat.	Spring wheat.	Barley.	Oats.	Rye.	Peas.	Corn.	Buckwheat.	Beans.	Potatoes.	Mangel-wurzels.	Carrots.	Turnips.	Hay and clover.	Totals.
Essex	166.7	1.5	16.5	168.2	3.3	12.7	191.3	5.4	7.6	12.2	2.5	.3	2.0	198.6	788.8
Kent	195.8	3.5	19.7	116.2	3.3	5.4	100.3	4.8	97.5	8.9	.9	.4	1.1	185.1	742.9
Elgin	163.3	.1	18.9	115.0	5.9	35.6	69.5	7.7	7.9	8.8	1.1	.5	1.5	204.8	640.6
Norfolk	170.9	1.4	10.0	105.6	15.9	86.6	60.6	23.8	3.3	13.2	1.2	.6	6.0	196 0	695.1
Haldimand	170 2	4 3	35.9	121.8	2.5	78.2	11.8	3.5	1.9	6.1	.6	.3	.5	284.3	721.9
Welland	128.2	.4	16.5	106.1	4.2	26.3	43.8	16.3	5.4	15.1	.3	.6	1.9	289.7	654.8
Group	169.2	2.0	19.5	122.0	5.8	38.5	82.5	9.7	26.2	10.3	1.1	.4	2.1	219.5	708.8
Lambton	142.5	3.4	34.3	153.0	.5	9.1	44.7	4.1	3.0	8.2	2.4	1.0	2.5	226.3	635.0
Huron	99.1	12.1	27.2	170.4	.4	69.3	8.0	1.6	.2	7.4	3.6	.8	14.2	215.7	630.0
Bruce	72.3	15.9	21.5	148 6	.6	89.9	5.5	1.6	.2	7.6	1.0	.5	16.7	231.3	613.2
Group	100.3	11.3	26.9	158.6	.5	62.0	15.9	2.2	.9	7.6	2 4	.8	12.2	223.7	625.3
Grey	32.1	24.9	24.2	195.8	1.1	81.5	6 4	2.2	.5	10.1	.9	.6	20.5	242.7	643.5
Simcoe	101.2	43.8	49.8	168.8	3.3	86.8	9.2	6.0	.7	14.3	1.1	.9	12.6	195.9	694.4
Group	64.3	33.7	36.1	183.2	2.2	84.0	7.7	4.0	6	12.0	1.0	.8	16.8	220.9	667.3
Middlesex	152.8	2.9	20.1	149.0	.7	23.4	35.6	1.6	1.9	9.1	3.0	1.0	5.6	196.6	603.3
Oxford	133 2	2.8	31.5	162.9	2.9	49.7	32.2	1 5	.7	7.9	2.7	.6	20.1	184 5	633.2
Brant	161.8	7.9	73.9	103.5	5.9	69.2	32.2	3.3	.1	12.8	2.4	1.0	21.1	192.4	687.5
Perth	103.5	10.8	32.2	193.3	.7	66.8	8 7	.4	.1	8.8	5.7	.7	14.9	206.9	653.5
Wellington	32.5	44.4	56.5	184 3	2.6	83 3	5.9	.3	.1	11.0	2.6	.6	32.7	203.4	660.2
Waterloo	166.7	11.1	61.4	193.1	2.3	70 2	6.7	.6	.1	11.8	1.8	.9	25.4	180.5	732.6
Dufferin	21.7	80.1	47.1	232.0	1.3	72 9	1.8	.8	.1	15.0	.5	.5	15.3	197.1	686.2
Group	109.1	20.2	41.6	173.6	2.0	58.7	18.7	1.1	.6	10.3	2.9	.8	18.6	195.9	654.1
Lincoln	140 2	.7	15 2	122.5	4.6	36.3	46.5	4.1	1.5	11.2	1.1	.7	1.9	280.2	666.7
Wentworth	146.2	1.9	39.9	141.9	2.3	61.5	30.9	8.2	.2	16.0	2.3	.7	14.4	245.6	712.0
Halton	134.5	8.1	44.0	128.4	3 3	73.8	12.8	.9	.2	8.8	2.9	.5	13.1	233.1	664.4
Peel	103.2	45.3	94 8	158.2	3.8	84.9	10.3	.5	.1	11.9	1.8	.9	7.5	190 3	713.5
York	80.0	31.9	84.8	184.5	2.5	88.8	9.0	1.9	.6	15.3	3.8	.9	11.6	217.7	733.3
Ontario	18.5	99.0	67.7	174.5	4 0	98 9	12.4	17.0	.6	12.5	1.7	.7	40.3	175.3	723.1
Durham	18.1	58.1	113.6	137.8	9.8	120 8	12.6	40.5	1.1	10.8	1 9	.8	22.5	163.0	711.4
Northumberland	47.5	52.4	77.3	106.3	27.0	87.7	22.6	57.3	2.7	13.0	1.5	.7	14.6	184.5	695.1
Prince Edward	30.6	11.8	82.2	71.6	24.9	107.0	44.2	97 3	1.6	11.2	1.2	.3	.5	207.2	691.6
Group	70.9	41.4	74.0	142.7	9.1	88.2	19.5	24.7	1.0	12.7	2.1	.7	16.1	204.1	707.2
Lennox & Add.	17.3	16.8	44.8	119.0	7.3	42.7	18.6	29.4	1.6	12.1	.5	.2	.8	314.5	625.6
Frontenac	1.5	28.8	22.5	153.9	11.4	46.3	22.0	13.0	.6	14.4	.6	.5	1.6	313.0	630.1
Leeds and Gren.	7.7	20.8	18.0	166.5	7.1	9.4	41.2	13.7	.8	15.8	.4	.5	1.2	291.4	594.5
Dundas	2.5	23.1	16.7	233.3	3.5	5.6	29,6	13.0	.9	14.0	.8	1.1	.7	293.9	638.7
Stormont	1.0	34.5	26.1	205.5	1.1	11.5	27.1	17.1	1.1	13.4	.4	1.8	.8	328 0	669.4
Glengarry	1.1	34.7	13.5	194.8	.7	19.9	24.2	12 8	5.1	12.5	.5	1.0	1.3	282.9	605.0
Prescott	.8	45.3	27.0	197.2	2.7	18.2	21.8	10.5	1.6	15.9	.4	.6	1.9	338.4	682.3
Russell	.5	32.2	25.7	227.1	2.8	28.4	28.7	7.0	5.1	17.4	2.2	2.5	8.6	294.4	682.6
Carleton	1.7	65.5	25.6	194.6	7.5	38.2	20.7	9.7	1.6	18 5	1.0	1.1	6.2	234.9	626.8
Renfrew	1.4	95.4	3 3	159.5	23.4	78.2	5.4	8.1	2.1	14 8	.5	.7	2.4	265.2	660.4
Lanark	4.5	40 0	8.8	152 2	4.6	39.2	12 9	15.3	.7	11.0	1.0	.7	2.5	264.0	557.4
Group	4.3	41.5	19.8	173.7	7.8	32.9	23.0	13.7	1.6	14.6	.7	.8	2.4	286.4	623.2
Victoria	10.7	87.8	75.5	205.6	3.4	84.1	2.5	22 2	.2	11.0	2.6	.7	17.4	194.5	718.2
Peterborough	31 4	75.1	24.4	163 7	16.7	87.5	8.6	13.8	.7	11.6	1.9	2.5	10.8	185.0	633.7
Haliburton	3.1	39.8	3.9	178.6	3.7	58.3	3 2	13.3	1.3	20 6	.4	.6	6.8	365.1	698.7
Hastings	29.2	25.4	39.7	134.8	17.5	59.8	35.7	23.2	1 6	13 3	1.6	.7	4 2	247.9	634.6
Group	23.4	57.3	44.9	164.8	12.6	74.2	17.6	20.1	1.0	12.5	1.9	1.2	9.9	220.0	661.4
Muskoka	.2	12.2	16.4	195.4	6.5	66.2	6.7	7.4	1.8	20.1	.8	2.5	13.6	421.4	771.2
Parry Sound	1 4	17.6	15.5	185.7	6.6	64.3	2.4	4.7	.5	20.4	.3	1.9	16.0	397.7	735.0
Nipissing	.6	25.0	17.2	144 7	4.0	60.1	2.8	6.2	1.5	30.0	.4	.6	10.7	429.4	733.2
Algoma	9 3	81.5	20 3	157.3	3.4	116.4	1.4	3.9	.6	18.7	.7	1.5	8.4	374.5	797.9
Group	3.5	37.2	17.5	176.3	5.3	81.5	3.4	5.4	1.0	20.5	.6	1.9	12.3	400.0	766.4
The Province	75.5	29.4	38.6	159.9	5.6	61.0	25.9	11.0	4.0	11.8	1.8	.8	11.3	228.4	665.0

TABLE XXVI. THE WORLD'S WHEAT CROP FOR SIX YEARS.

	1893.	1892.	1891.	1890.	1889.	1888.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Europe—						
France	280,000,000	301,600,000	213,600,000	328,000,000	307,000,000	280,000,000
Russia	305,000,000	233,600,000	163,200,000	205,600,000	179,000,000	295,000,000
Poland	20,000,000	23,400,000	12,000,000	12,000,000	12,000,000	20,000,000
Caucasia	64,000,000	68,800,000	80,000,000	56,000,000	65,000,000	65,000,000
Hungary	158,000,000	141,600,000	139,200,000	143,200,000	94,000,000	136,000,000
Austria	42,000,000	46,400,000	39,200,000	49,600,000	38,000,000	51,000,000
Croatia and Sclavonia	6,000,000	6,400,000	6,400,000	6,400,000	6,000,000	6,000,000
Italy	131,000,000	112,200,000	137,600,000	127,700,000	103,000,000	104,000,000
Germany	112,000,000	116,400,000	85,800,000	103,200,000	87,000,000	93,000,000
Spain	86,000,000	74,000,000	71,000,000	72,000,000	76,000,000	76,000,000
Portugal	6,000,000	6,400,000	7,000,000	6,500,000	9,000,000	7,000,000
Roumania	58,000,000	58,400,000	60,000,000	72,000,000	45,000,000	51,000,000
Bulgaria	29,000,000	29,000,000	30,000,000	20,000,000	25,000,000	30,000,000
Eastern Roumelia	3,000,000	4,800,000	4,700,000	4,700,000	3,000,000	4,000,000
Servia	10,000,000	9,000,000	8,000,000	7,000,000	5,000,000	9,000,000
Herzegovina and Bosnia	2,000,000	2,000,000	1,800,000	1,500,000	1,000,000	2,000,000
Turkey-in-Europe	24,000,000	25,000,000	30,000,000	25,000,000	40,000,000	43,000,000
Greece	7,000,000	7,500,000	8,000,000	6,900,000	5,000,000	5,000,000
United Kingdom	51,000,000	60,900,000	75,200,000	76,000,000	78,000,000	77,000,000
Belgium	17,000,000	20,000,000	16,000,000	19,200,000	19,000,000	15,000,000
Holland	5,000,000	6,200,000	4,600,000	6,000,000	6,000,000	4,000,000
Switzerland	2,400,000	4,000,000	1,800,000	2,200,000	2,000,000	2,000,000
Sweden	3,900,000	3,200,000	3,800,000	3,700,000	4,000,000	3,000,000
Denmark	4,800,000	4,800,000	4,500,000	4,800,000	5,000,000	4,000,000
Norway	400,000	300,000	300,000	400,000	....	1,000,000
Cyprus, Malta, etc	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Total Europe	1,429,500,000	1,367,900,000	1,205,700,000	1,361,600,000	1,216,000,000	1,385,000,000
America—						
U. S. A.	460,000,000	550,000,000	660,000,000	410,000,000	491,000,000	416,000,000
Canada	43,000,000	54,600,000	55,300,000	44,000,000	31,000,000	33,000,000
Mexico	12,000,000	10,000,000	12,000,000	12,000,000	10,000,000	8,000,000
Argentina	90,000,000	55,400,000	36,800,000	32,800,000	16,000,000	24,000,000
Chili	13,000,000	17,600,000	19,400,000	14,400,000	19,000,000	20,000,000
Uruguay	5,500,000	3,200,000	3,600,000	4,100,000	2,000,000	3,000,000
Total America	623,500,000	690,800,000	787,100,000	517,300,000	569,000,000	504,000,000
Asia—						
India	240,000,000	206,400,000	285,200,000	225,600,000	236,000,000	267,000,000
Turkey-in-Asia	45,000,000	40,000,000	43,000,000	44,000,000	37,000,000	34,000,000
Persia	19,000,000	17,500,000	20,500,000	22,000,000	22,000,000	23,000,000
Japan	15,000,000	15,000,000	15,000,000	14,000,000	15,000,000	14,000,000
Total Asia	319,000,000	278,900,000	363,700,000	305,600,000	310,000,000	338,000,000
Africa—						
Algeria	14,400,000	18,500,000	25,600,000	28,400,000	22,000,000	20,000,000
Tunis	7,000,000	8,000,000	7,000,000	7,000,000	4,000,000	4,000,000
Egypt	10,000,000	8,000,000	11,000,000	10,000,000	8,000,000	14,000,000
The Cape	4,800,000	4,000,000	3,500,000	4,000,000	3,000,000	3,000,000
Total Africa	36,200,000	38,500,000	47,100,000	49,400,000	37,000,000	41,000,000
Australasia—						
Victoria	15,000,000	13,600,000	12,800,000	11,200,000	11,500,000	8,600,000
South Australia	9,200,000	6,400,000	9,400,000	14,500,000	14,600,000	6,200,000
New Zealand	8,400,000	10,200,000	5,700,000	8,500,000	8,500,000	8,800,000
New South Wales	6,800,000	5,000,000	3,900,000	3,600,000	6,600,000	1,500,000
Tasmania	1,000,000	1,100,000	1,000,000	800,000	700,000	800,000
Queensland	460,000	200,000	200,000	200,000	100,000	....
Western Australia	400,000	300,000	300,000	300,000	500,000	300,000
Total Australasia	41,260,000	36,800,000	33,300,000	39,100,000	42,500,000	26,200,000
Grand Total	2,449,460,000	2,412,900,000	2,436,900,000	2,273,000,000	2,174,500,000	2,294,200,000

N. B.—The crops are those harvested prior to the 1st September in each year, excepting in the cases of the Argentine, Uruguayan, and Chilian, which are those of the December and February following.

PART II.

LIVE STOCK, THE DAIRY AND THE APIARY.

LIVE STOCK.

The April bulletin contained the following regarding animals on the farm : " Where live stock did not come through the winter in good condition, the blame may be charged to want of care by owners rather than to lack of fodder. The season was a severely cold one, and the cattle and horses ranging the barnyards on poorly managed farms suffered from exposure, the thermometer ranging low even in the lee of the straw stack. It is pleasing to observe, however, that many correspondents refer to the marked improvement in the winter care of all classes of live stock compared with the past. Horses were in good condition generally, although cases of influenza and distemper were reported in various localities. Frequent reference is made to the large number on hand, and the difficulty of sale. Dairy cows, on the other hand, appear to be in demand, and all classes of horned cattle, save in a few exceptional cases, were well spoken of as regards condition. Reports of "grub in the head" in sheep are more frequent than usual, although not seriously so. With this exception, and the fact that losses when lambing were rather common, the general health of sheep was counted good. Swine are commanding more recognition, and, with other live stock, are receiving better care from their owners. The demand for hogs during the fall and early winter was brisk, and less than usual appear to have been held over for fattening. A larger number of brood sows than ordinarily were kept over, however, and well it happened The loss among newly littered pigs has been heavy, large numbers dying between birth and the second week. Several correspondents attribute this mortality to the severity of the winter. Apart from this the swine industry is in a hopeful state, and the Canadian pig is now getting a fair measure of appreciation. There was an abundance of fodder, particularly of hay, and few farm animals suffered from actual scarcity of supplies."

The following was contained in the August bulletin : " The reports from all districts show that pasture, up to July 20th, was good, but after that the fields began to suffer through lack of rain. Pasture, therefore, for the past few weeks has been a failure, save in the Northern, East Midland and the northern portions of the St. Lawrence and Ottawa districts. In these the pasture has been and is good. The stock, however, have done well considering the season ; and the indications are that fall and winter fodder will be ample."

The November bulletin had the following to say : " Pastures were reported in good condition in the St. Lawrence and Ottawa group and in a few adjoining counties, but in the remainder of the province drouth and, in many sections, grasshoppers, left the pastures bare and uninviting. The consequence is that except in the more eastern part of the province cattle will enter the winter much thinner than usual. The scant pastures had to be supplemented by hand feeding much earlier than usual. Sheep and lambs are unusually plentiful in eastern Ontario and are not scarce in the west. Hogs are being rushed to market at a rapid rate and breeders have been much encouraged by the results. Many of these animals have been nicely finished off with good wheat. Live stock generally are in good health, and not a single case of disease has been reported by correspondents. Supplies generally are fair. Except in isolated cases there will be a sufficiency of fodder as, notwithstanding the large exportation, there is still a considerable quantity of hay on hand, and a fair supply of grains awaiting higher prices or the feed-box. Straw is not first-class but the general outlook for the winter is most encouraging so far as the keep of live stock is concerned. The silo is making gradual headway in the dairy counties of eastern Ontario, but does not appear to take so well in the western part of the province."

HORSES. The following table shows the number of horses by classes in 1892 and 1893, by county groups and by the province; also the total number of horses in each district and in the province in each of the five years 1889 93:

Horses.		Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
Working horses	1893.	52,184	38,036	32,271	72,395	79,378	68,381	25,797	5,173	373,615
	1892.	49,503	36,851	30,352	69,013	76,731	66,745	24,634	4,839	358,668
Breeding mares	1893.	13,129	11,638	9,355	20,563	20,774	16,594	6,895	1,605	100,553
	1892.	14,615	12,390	9,960	22,307	22,586	18,597	7,828	1,582	109,865
Unbroken horses	1893.	30,778	24,182	18,439	42,639	41,891	35,376	15,152	2,562	211,019
	1892.	32,877	25,196	19,270	44,035	43,106	37,069	16,103	2,625	220,281
Totals.....	1893.	96,091	73,856	60,065	135,597	142,043	120,351	47,844	9,340	685,187
	1892.	96,995	74,437	59,582	135,355	142,423	122,411	48,565	9,046	688,814
	1891.	96,722	75,357	56,161	132,879	143,716	120,760	44,756	8,108	678,459
	1890.	94,235	72,218	53,697	129,641	140,571	118,959	43,801	6,514	659,636
	1889.	84,975	66,750	52,855	124,325	131,551	111,250	42,135	4,954	618,795

There is an increase of 14,947 in the number of working horses in the province compared with the figures for the previous year, while there is a decrease of 9,312 in the number of breeding mares, and a decrease of 9,262 in the number of unbroken horses, the net result being a falling off in the total number of horses of 3,627. There are more horses in the Lake Ontario counties than in any other group, although the West Midland district leads in the number of unbroken horses.

HOGS. In the table following the total numbers of swine are given by county groups and for the province for each of the five years 1889 93, and for 1892 and 1893 by classes of over and under one year:

Hogs.		Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern districts.	The Province.
Over 1 year	1893..	38,112	20,026	20,671	36,441	34,194	46,815	19,442	4,695	220,396
	1892..	42,312	21,462	21,718	38,639	34,791	46,764	21,040	4,894	231,320
Under 1 year	1893..	144,892	67,711	74,186	167,375	151,532	122,070	52,417	11,443	791,626
	1892..	140,041	66,716	74,594	161,761	148,608	112,951	49,697	11,286	765,654
Totals....	1893..	183,004	87,737	94,857	203,816	185,726	168,885	71,859	16,138	1,012,022
	1892..	182,353	87,878	96,312	200,400	183,399	159,715	70,737	16,180	996,974
	1891..	223,384	102,295	104,600	243,313	219,485	162,088	82,864	18,257	1,156,316
	1890..	242,635	107,506	95,628	239,310	210,985	156,623	75,199	12,673	1,140,559
	1889..	197,015	73,096	74,104	171,444	148,233	115,645	48,411	7,521	835,469

There are less hogs over one year than in 1892, but the increase in the number under one year more than balances this, there being 1,012,022 of all classes of swine compared with 996,974 in 1892. The St. Lawrence and Ottawa district is credited with the most swine over one year, but several groups surpass it in the number under one year, while the West Midland counties lead in the total number.

HORNED CATTLE. The table following shows by classes the number of cattle in 1892 and 1893, and also the total number in each of the five years 1889-93 by county groups and for the province:

Cattle.		Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
Working oxen	1893	697	353	656	312	445	553	943	1,295	5,254
	1892	812	403	866	355	566	531	817	1,494	5,844
Milch cows	1893	81,914	71,809	60,531	153,640	126,533	226,010	70,405	12,756	803,598
	1892	80,565	71,267	58,979	152,032	126,061	218,453	67,978	12,501	787,836
Store cattle over 2 years	1893	41,234	71,485	40,578	92,311	45,282	55,936	24,561	6,627	378,014
	1892	42,215	70,563	42,786	85,393	42,833	53,008	23,790	6,117	366,705
Young and other cattle	1893	94,475	121,719	92,300	186,855	127,807	163,934	64,256	19,670	871,016
	1892	97,920	120,824	89,023	186,967	127,002	165,180	62,511	19,328	868,755
Totals	1893	218,320	265,366	194,065	433,118	300,067	446,433	160,165	40,348	2,057,882
	1892	221,512	263,057	191,654	424,747	296,462	437,172	155,096	39,440	2,029,140
	1891	219,609	258,341	181,514	428,780	291,471	422,091	138,842	38,167	1,978,815
	1890	222,626	251,736	170,775	414,259	271,991	399,478	131,905	31,942	1,894,712
	1889	224,401	250,936	172,527	417,907	293,214	374,038	132,928	25,948	1,891,899

Oxen are still declining in number, while milch cows and other classes of horned cattle have increased. The Lake Erie group is the only district in which there has not been an increase in the total number of cattle. The more newly settled Northern Districts have the most oxen; the St. Lawrence and Ottawa counties have the largest number of milch cows, while the greatest number of store cattle and young animals are to be found in the West Midland group.

SHEEP. The next table gives the number of sheep by classes in 1892 and 1893, and also the total number in each of the five years 1889-93, by county groups and for the province:

Sheep.		Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
Over 1 year	1893	112,411	147,724	128,291	185,433	156,060	200,137	76,616	25,397	1,032,069
	1892	108,754	143,542	123,793	175,606	144,726	191,327	68,851	23,363	979,962
Under 1 year	1893	101,597	141,959	111,424	168,495	128,254	170,151	62,477	19,512	903,869
	1892	101,959	135,550	108,392	164,622	119,229	166,439	55,964	18,356	870,511
Totals	1893	214,008	289,683	239,715	353,928	284,314	370,288	139,093	44,909	1,935,938
	1892	210,713	279,092	232,185	340,228	263,955	357,766	124,815	41,719	1,850,473
	1891	194,526	236,168	205,357	328,362	263,053	327,166	103,609	35,510	1,693,751
	1890	172,959	187,861	163,138	255,403	189,080	267,211	76,728	27,315	1,339,695
	1889	146,038	172,656	167,947	257,840	214,475	275,905	89,084	20,235	1,344,180

There is an increase of 85,465 in the total number of sheep, every group showing a greater number than in the preceding year. Each of the districts have more sheep over one year than in 1892, and, excepting the Lake Erie group, the same may be said regarding sheep under one year. The St. Lawrence and Ottawa counties have the most sheep.

WOOL CLIP. In the table following the number of fleeces is given, with total and average weights, by county groups and for the province for 1892 and 1893; also the average of the province for the twelve years 1882-93:

Districts.	1893.			1892.			1882-93.		
	Fleeces.	Pounds.	lb per fleece.	Fleeces.	Pounds.	lb per fleece.	Fleeces.	Pounds.	lb per fleece.
Lake Erie	108,539	631,633	5.82	104,205	616,977	5.92	106,670	600,656	5.63
Lake Huron	144,463	854,167	5.91	139,716	843,961	6.04	125,654	726,575	5.78
Georgian Bay	128,336	747,746	5.83	121,666	725,834	5.97	116,494	652,244	5.60
West Midland	182,295	1,112,019	6.10	174,330	1,063,979	6.10	188,671	1,089,891	5.78
Lake Ontario	156,022	973,701	6.24	145,077	902,601	6.22	156,360	931,183	5.96
St. Lawrence and Ottawa	196,261	1,028,146	5.24	186,754	986,165	5.28	216,151	1,068,707	4.94
East Midland	74,376	407,582	5.48	66,575	374,009	5 62	67,326	354,066	5.26
Northern Districts	25,205	141,897	5.63	22,837	130,180	5.70	14,415	81,170	5.63
The Province	1,015,497	5,896,891	5.81	961,160	5,643,706	5.87	991,741	5,504,405	5.55

The average weight per fleece is 5 81 lb., which is .26 lb. more than the average for the twelve years, although a little lighter than the average for 1892. In the Lake Ontario counties the average weight per fleece was 6.24 lb., while in the St. Lawrence and Ottawa counties it was only 5.24 lb. The total number of fleeces was 1,015,497, being 54,337 more than in 1892 and the weight of the clip is 5,896,891 lb. an increase of 253,186 lb. compared with the preceding year.

POULTRY. An immense amount of capital is invested in fowl on Ontario farms, yet the lack of clear information regarding general management and profits is very apparent in the reports of correspondents. The annual profit on a hen well cared for is placed at from 60c. to $1. One correspondent claims that at prevailing prices of wheat and eggs a bushel of good wheat fed to hens should get $1 in eggs. As ordinarily handled, however, there is little or no profit in poultry. Plymouth Rocks appear to be the favorites, as combining laying and table qualities. In eastern Ontario the raising of domestic birds does not appear to be so prosperous as usual; and a disease, said to be cholera, caused considerable losses in the county of Prescott. Generally speaking, however, fowl have been in good condition all over the province and the immense number of grasshoppers during the summer gave a supply of favorite food.

The following table shows by classes the number of poultry by county groups and for the province in 1892 and 1893, together with the totals for the five years 1889-93:

Poultry.		Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
Turkeys	1893	85,886	58,722	52,133	106,884	132,897	154,143	36,860	11,002	638,527
	1892	82,191	61,916	48,559	107,903	126,052	157,392	33,580	10,911	628,504
Geese	1893	41,572	49,571	50,208	74,143	84,918	98,492	33,220	7,268	439,482
	1892	42,340	51,496	49,074	78,408	87,797	95,785	32,878	7,376	445,154
Other fowls	1893	793,995	656,275	519,733	1,243,391	1,170,194	1,143,736	410,637	98,466	6,036,427
	1892	769,464	663,278	526,355	1,231,689	1,146,399	1,155,921	416,263	95,946	6,005,315
Totals.	1893	921,453	764,568	622,164	1,424,418	1,388,009	1,396,371	480,717	116,736	7,114,436
	1892	893,995	776,690	623,988	1,418,000	1,360,248	1,409,098	482,721	114,233	7,078,973
	1891	921,742	785,769	603,837	1,407,686	1,391,488	1,307,506	479,147	108,975	7,006,090
	1890	893,207	778,638	584,440	1,424,388	1,350,131	1,294,763	437,637	91,660	6,854,864
	1889	879,552	727,269	557,286	1,342,071	1,130,730	1,170,461	430,424	66,505	6,304,298

Compared with the figures for 1892 there is an increase of 10,023 in the number of turkeys in the province, a decrease of 5,672 in the number of geese, and an increase of 31,112 in the number of other fowls, making a net gain of 35,463 in all classes of poultry combined—the total now being 7,114,436. The West Midland counties still lead as a poultry centre, although closely followed by the St. Lawrence and Ottawa and Lake Ontario groups.

LIVE STOCK SOLD. The following table presents by county groups and for the province the number of each class of live stock sold in 1892 and 1893 :

Live stock sold.		Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
Horses	1893	6,897	7,386	3,613	8,887	9,328	7,705	3,226	855	47,897
	1892	6,641	8,278	3,293	9,472	9,313	7,057	2,132	769	46,955
Cattle	1893	52,681	74,578	42,483	119,005	74,540	63,765	26,961	7,488	461,501
	1892	49,945	71,646	39,699	111,843	68,461	60,997	25,853	7,908	436,352
Sheep	1893	79,659	90,982	71,546	117,774	93,674	111,365	40,317	10,920	616,237
	1892	75,301	80,959	66,233	111,091	86,919	105,786	38,689	10,956	575,934
Hogs	1893	179,142	90,267	84,996	241,343	198,936	111,680	64,490	13,594	975,358
	1892	175,818	90,897	84,309	243,724	201,580	105,255	62,174	14,034	978,791
Poultry	1893	329,510	178,089	156,965	350,572	449,586	386,936	131,367	34,482	2,017,507
	1892	326,572	173,507	155,609	345,589	426,221	381,007	129,585	37,319	1,966,409

Taking the figures for the province there is but little to cause comment. There has been an increase in the number of horses, cattle, sheep and poultry disposed of, and a slight decrease in the number of hogs sold. However, all the county groups do not tell the same story. In the Lake Huron and West Midland groups less horses changed hands than in the previous year, and in the Northern Districts there were less cattle, sheep and poultry sold ; while in the Georgian Bay, St Lawrence and Ottawa and East Midland groups more hogs were disposed of than in 1892.

THE APIARY.

The following is from the June bulletin : "Reports concerning bees are far from satisfactory. Some correspondents complain of the severity of the winter, while others say that skilled apiarists wintered their colonies with but little loss. The cold, wet and backward spring, however, has been very trying to bees, spring dwindling was common and stocks entered the active season rather weak. Several correspondents spoke of dysentery, but only two made mention of foul brood. The mortality is greater than usual, ranging from 1 to 100 per cent., and averaging over 25 per cent. Swarming was only beginning as correspondents wrote."

A rather cheerful tone pervaded the August reports, as will be seen by the following summary from the bulletins for that month : "From every quarter the bees are reported to be in a healthy condition, and they have not suffered from any complaint during the summer. From the Georgian Bay district it is reported that a large number of colonies were destroyed by the severe weather of the past winter. Swarming all over the province wherever bees are kept was good. The supply of nectar in field and forest in one or two instances only is reported to have been deficient, but in all others it is good, except in a few cases where it is given as superabundant. The average yield per colony is variously stated. This depends largely upon the manner in which the bees are cared for. Some

colonies are reported as yielding 20 lb., while the average appears to be 40 lb., with not a few rating at 80, 100 and 150 lb. In West and East Midland, Northern and Georgian Bay districts bees are not extensively kept, nor or they common in the counties of Huron and Bruce in the Lake Huron district. The answer to the question, 'Are bees in a thrifty condition at present?' is unanimously in the affirmative."

The November bulletin thus summed up the condition of the honey industry: "The prospects up to the time the August bulletin was published were most encouraging for the apiary, but the dry weather of the last few months has told against honey making. In fact, apart from white clover, there has been very little nectar available for bees to store. The consequence is that while honey is of first-class quality as a rule bees will go into winter quarters with light supplies and will require considerable feeding back. There was only casual mention of foul brood, but expert apiarists dread considerable mortality amongst bees during the winter from lightness of stores."

THE DAIRY.

Brief mention was made of the dairy in the August bulletin, as follows: "The supply of dairy produce, considering the province as a whole, is about the average. Complaints are made that there is a scarcity of butter in the west, owing to the dry weather causing the milk supply to lessen. In the northeastern part of the province there are no such complaints."

The November bulletin thus described the condition of affairs: "The three months of August, September and October have been trying to the cheese and butter industries. There was a good supply of milk during the earlier part of the summer, but the dry weather since the middle of July checked the flow to a considerable extent, and many cheese factories were forced to close earlier than usual. In the St. Lawrence and Ottawa counties the reports regarding cheesemaking were exceedingiy encouraging. Butter has improved in price compared with previous years, and the quality is somewhat better than usual, a fact which some correspondents attribute to the work of the travelling dairies. The Durham grade cow is the favorite animal; Ayrshires and Holsteins come next, and Jerseys follow closely. A few correspondents stoutly aver that the "native" or "Canadian" is as good as any as a milker, and some assert that the best cow for the Ontario farmer is not yet known."

CHEESE FACTORIES. The following table gives the statistics of 897 cheese factories operated in Ontario in 1893. These figures are estimated from returns received from 675 factories. Similar statistics are given for the previous ten years, together with the annual average for the eleven years 1883-93:

Year.	No.	Quantity of—		Gross value of cheese.	Average No. of patrons.	Average No of cows.	Milk required to make 1 pound of cheese.	Value of cheese per 100 lb.	Average date of opening.	Average date of closing.
		Milk used.	Cheese made.							
		lb.	lb.	$			lb.	$ c.		
1893.....	897	911,791,204	86,166,719	8,358,709	50,870	343,372	10.58	9 68	May 2	Nov. 2
1892.....	856	984,356,444	93,848,948	8,959,959	48,601	316,117	10.49	9 55	" 1	" 6
1891.....	838	865,453,574	81,929,042	7,656,484	45,066	296,194	10 56	9 35	" 4	" 2
1890.....	817	836,387,516	79,364,713	7,189,957	44,838	304,584	10.54	9 06	" 4	Oct. 31
1889.....	784	760,146,327	72,592,847	6,787,619	43,215	273,231	10.47	9 35	" 4	" 30
1888.....	737	686,369,013	65,299 751	6,031,470	42,065	256,780	10.51	9 24	" 5	" 24
1887.....	737	691,931,579	65,638,656	6,918,913	42,512	254,5'0	10 54	10 54	" 4	" 27
1886.....	770	654,703,243	63,721,621	5,893,818	37,635	237,106	10.27	9 25	" 7	" 29
1885.....	752	733,437,254	71,209,719	5,781,569	44,208	260,244	10.30	8 12	" 4	" 29
1884.....	751	685,964,727	66,939,573	6,998,889	38,646	254,852	10 25	10 46	" 3	" 30
1883.....	635	539,696,197	53,513,032	5,589,339	32,636	193,840	10.08	10 45	" 3	" 30
Average 1883-93..	779	759,112,734	72,747,693	6,922,428	42,757	274,621	10.44	9 52	" 4	" 30

There are now more cheese factories in the province than ever before, the number operated being 897, or 41 more than in 1892. Notwithstanding the increase in the number of factories at work, there is a decrease of 35 in the number of factories making returns to this Bureau, only 675 reporting, compared with 710 in the preceding year. There were 50,870 patrons of factories, an increase of 2,269 over the previous year, and although there has been a slight decline in the estimated number of cows, the decrease in the quantity of milk furnished and the amount of cheese made points to a heavy falling off in the milk flow owing to the midsummer drouth. The gross value of the cheese manufactured is also less than in 1892, although well ahead of that of any other year of the table. The quality of the milk also appears to have been deficient, as it took 10.58 pounds to make a pound of cheese, which is more than was required in any of the other nine years. The average value of cheese per 100 pounds is $9.68, which is the best record of any year since 1887. The average length of the season was greater than in any other year excepting 1892. Nearly one-half of the cheese factories are located in the St. Lawrence and Ottawa group of counties.

CREAMERIES. The following table gives the statistics furnished by 37 public creameries for 1893-4, showing the quantity and value of butter made, the average number of patrons and the average price of the butter per pound. The statistics of winter and summer creameries are given separately, and none of the former are included in the totals given for 1892 :-

Creameries.	No. of returns.	Butter made.		Cheese made.		Total value of cheese and butter products.	Average No. of patrons.	Average price of butter per lb.
		Quantity.	Value.	Quantity.	Value.			
			$		$	$		cts.
Summer, 1893	25	1,206,875	252,479	.....	.....	252,479	3,416	20.92
Winter, 1893-4	10	112,642	27,113	.....	.....	27,113	387	24.07
Combination, cheese and butter.....	2	34,268	7,486	127,434	9,644	17,130	123	21.85
Total :								
1893....	37	1,353,785	287,078	127,434	9,644	296,722	3,926	21.21
1892....	29	1,867,758	384,576	137,945	9,743	394,319	4,246	20.59

The number of creameries reported in operation was 74, so that only one-half of these are represented in the above figures. The number of creameries in operation in 1892 was 50, but this was exclusive of winter creameries. The totals given above are for creameries making returns.

The above table shows a large falling off in the amount of butter made, but several of the larger creameries reported in 1892 did not make returns for 1893, even after repeated requests. The drouth, however, shows itself plainly when we make a comparison of the same creameries reporting for both years. We find that seventeen creameries in 1892 made 984,666 lb. of butter, valued at $200,420, and the average number of patrons was 2,012. In 1893 the patrons increased to 2,344, while the quantity of butter made decreased to 885,752 lb., valued at $185,311.

The two combination creameries used 1,802,660 lb. of milk, and the value of the products was $17,130, or 95 cents per 100 lb. of milk. We have returns from four creameries that gather cream by weight, and these average 4.28 lb. of cream to 1 lb. of butter ; the average of six years is 4.29 lb. We have returns from 19 creameries on the separator plan and these show that 23.58 lb. of milk was required to make a pound of butter ; the average of seven years is 24.70 lb. The value of the butter product on this plan was 96.8 cents per 100 lb. of milk. The gross value of the cheese product on the cheese factory plan was 91 5 cents per 100 lb. of milk.

The following is a summary of the results of the three methods :

	Value of product of 100 lb. of milk.		
	1893.	1892.	1887-93.
Creameries (exclusive of buttermilk).	96.8 cents	84 2 cents.	85.3 cents.
Butter and cheese factories	95.0 "	96 6 "	95.7 "
Cheese factories	91.5 "	91.0 "	90.4 "

The large increase in the creamery plan in 1893 is due to reduction of 7 per cent. in the amount of milk required for a pound of butter, in addition to an increase in market prices.

MONTHLY STATISTICS OF CHEESE FACTORIES. The following table gives the monthly output of one hundred cheese factories which gave this information. The returns came in slowly and when the one hundred had been received, which had also been returned in 1892, the tabulation was completed. The yearly statistics for 1892 are given for the same factories used in table for 1893 :

Months.	Quantity of milk used.	Quantity of cheese made.	Gross value of cheese.	Milk to make 1 lb. of cheese.	Value of cheese per lb.	Gross value of product of 100 lb. milk.	Per cent. of cheese made in month.
	lb.	lb.	$	lb.	cts.	cts.	
Western factories (40) :							
March	.....	.....	.....	.....	.....	.....	.....
April	391,227	35,308	3,349	11.08	9.49	85.6	.8
May	4,530,342	413,983	38,096	10.94	9.20	84.1	9.2
June	12,251,014	1,111,573	102,047	11.02	9.18	83.3	24.8
July	11,079,405	1,038,760	97,127	11.24	9.35	83.2	23.2
August	8,775,982	791,628	79,609	11.09	10.06	90.7	17.6
September	6,376,066	612,992	68,340	10.40	11.15	107.2	13.7
October	3,992,194	406,703	45,903	9.82	11.29	115.0	9.0
November	702,865	75,050	8,430	9.37	11.23	119.8	1.7
December	.....	.....	.....	.....	.....	..	....
Total :							
1893	48,699,095	4,485,997	442,901	10.86	9.87	90.9	100.0
1892 ...	58,711,345	5,478,919	531,462	10.72	9.70	90.5	100.0
Eastern factories (60) :							
March	116,413	11,158	1,150	10.43	10.31	98.8	.1
April	1,246,138	114,769	11,487	10.86	10.00	92.2	1.6
May	10,819,301	1,011,770	93,962	10.69	9.29	86.9	13.7
June	17,717,838	1,646,084	149,883	10.76	9.11	84.6	22.4
July	15,410,005	1,416,351	132,339	10.88	9.34	85.9	19.2
August	11,906,498	1,108,106	110,081	10.74	9.93	92 5	15.0
September	10,239,517	1,035,743	106,164	9.89	10.25	103.7	14.1
October	7,925,029	853,422	87,564	9.29	10 26	110.5	11.6
November	1,412,537	159,450	16,989	8.86	10.65	120.3	2.2
December	58,189	6,792	713	8.57	10.50	122.5	.1
Total :							
1893	76,851,465	7,363,645	710,332	10.44	9.65	92.4	100.0
1892	76,958,288	7,437,965	709,481	10.35	9.54	92.2	100.0
Western and Eastern (100 factories) :							
March	116,413	11,158	1,150	10.43	10.31	98.8	.1
April	1,637,365	150,077	14,836	10.91	9.89	90.6	1.3
May	15,349,643	1,425,753	132,058	10.77	9.26	86.0	12.0
June	29,968,852	2,757,657	251,930	10.87	9.14	84.1	23.3
July	27,089,410	2,455,111	229,466	11.03	9.35	84.7	20.7
August	20,682,480	1,899,734	189,690	10 89	9.99	91.7	16.0
September	16,615,583	1,648,735	174,504	10.08	10.58	105.0	13.9
October	11,917,223	1,260,125	133,467	9 46	10.59	112.0	10.6
November	2,115,402	234,500	25,419	9.02	10.84	120.2	2.0
December	58,189	6,792	713	8.57	10.50	122.5	.1
Total :							
1893	125,550,560	11,849,642	1,153,233	10.60	9.73	91.8	100.0
1892	135,669,633	12,916,884	1,240,943	10.50	9.61	91.5	100.0

The Western factories are from the Lake Erie, Lake Huron, Georgian Bay and West Midland groups; the Eastern from Lake Ontario, St. Lawrence and Ottawa, and East Midland.

Taking the figures for the hundred factories there is a falling off of over 10,000,000 pounds of milk compared with the previous year, but the decrease is confined chiefly to the forty factories of the western part of the province. Taking both eastern and western factories, it required 8.57 pounds of milk in December, when the milk flow was exceedingly small, to make one pound of cheese, while in July it took 11.03 pounds of milk to the pound of cheese. The average for the season was 10.60 pounds, which is one-tenth of a pound more than in the preceding year. In this respect the eastern factories have a better showing than those of the west, as but 10.44 pounds of milk were required per pound of cheese in the former to 10.86 pounds of milk in the latter. The cheese of the western part of the province averaged a higher price than in the case of the eastern factories, the average for the forty western being 9.87 cents per pound against 9.65 cents per pound for the sixty eastern. October cheese in the western factories averaged as high as 11.29 cents, November 11.23 cents and September 11.15 cents, while in the eastern factories the best record was for November, when an average of 10.65 cents was paid. Three-fifths of the cheese of the province is made in the months of June, July and August.

CHEESE FACTORIES AND CREAMERIES IN ONTARIO.

CHEESE FACTORIES IN OPERATION IN ONTARIO DURING 1893, WITH NAME AND POST OFFICE ADDRESS OF T SECRETARY OF EACH FACTORY.

NOTE.—No return received from factory marked with asterisk (*); new factories in 1894 (†).

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
ESSEX:			
Colchester, S	Erie Cheese Co	E. L. Adams, Sec	Harrow
Mersea	Blytheswood	F. A. Leak, Prop	Blytheswood.
KENT:			
Chatham	Chatham Gore	D. McArthur, Pres	Tupperville.
	Sydenham Valley	Wm. Howe, Pres	Keith.
Harwich	Rondeau	Calvin Johnson, Pres	Blenheim.
Orford	Muirkirk	L. R. Richardson, Prop	Strathroy.
Tilbury, E	*Valetta	Wm. Gardiner	Valetta.
ELGIN:			
Aldborough	Rodney, West Lorne	John F. Taylor, Sec	West Lorne.
	Crinan	W. H. McLean, Prop	Crinan.
Bayham	Bayham Br. (Brownsville)	W. A. Elliott, Sec	Brownsville.
	Griffin's Corners	Benj. Brian, Sec	Griffin's Corner
	Guysborough	G. W. Marshall, Sec	Guysborough.
	New England (M. & B. Co.)	O. E. Twiss, Sec	Tilsonburg.
	*Nova Scotia Street	M. M. Griffin	Lakeview.
	Vienna	Wm. Watts, Sec.-Treas	Vienna.
Dorchester, S	Avon	Wm. Dafoe, Sec.-Treas	Avon.
	*Lyons	James Mitchell, Treas	Lyons.
	Springfield	John Yoder, Sec	Springfield.
Dunwich	Dutton	W. A. Ostrander, Prop	Dutton.
	Wallacetown	A. Keillor, Sec	Wallacetown.
Malahide	*Dunboyne	N. F. Tufford, Sec	Dunboyne.
	Malahide	R. Abell, Sec	Aylmer.
	Northwood	George Beckett, Sec	Aylmer.
Southwold	Iona Station	C. A. Ostrander, Prop	Iona Station.
	*Payne's Mills	Wm. Sharon, Sec	Frome.
	West Magdala	R. R. Cranston, Prop	West Magdala
Yarmouth	*Elgin	J. W. Scott, Prop	Sparta.
	Mapleton	John Brodie, Prop	Mapleton.
	Yarmouth Centre	W. G. Sanders, Sec.-Treas	St. Thomas.
NORFOLK:			
Charlotteville	Lynedoch	G. R. Gray, Prop	Lynedoch.
	St. Williams	G. W. Newman, Sec	St. Williams.
	Vittoria	John Pow, Sec	Vittoria.
	Walsh	Walter Rollings, Sec	Walsh.
Houghton	Clear Creek	E. G. Matthews, Prop	Clear Creek.
	*Houghton Centre	G. E. Smith, Sec (1894)	Cornell.
Middleton	Courtland (M. & B. Co.)	O. E. Twiss, Sec	Tilsonburg.
	South Middleton	Walter N. Fisher, Sec	South Middlet
Townsend	Boston	H. J. Barber, Prop	Boston.
	*Rockford	W. R. Shearer, Prop	Villa Nova.
	*Villa Nova	H. W. Foster, Sec	Villa Nova.
	Waterford	S. Cunningham, Sec	Waterford.
Walsingham, N	Carholme	Wm. Knowles, Prop	Carholme.
	Marston	John Brayley, Prop	Marston.
Windham	Bookton	James H. McIlwrath, Prop	Bookton.
	Nixon	J. W. Fotheringham, Prop	Nixon.
	*Ranelagh	James Walker, Treas	Ranelagh.
Woodhouse	Black Creek	W. C. Parsons, Prop	Jarvis.
	Excelsior	J. H. Woolley, Pres	Simcoe.
	Lynn Valley	Edmund Ford, Prop	Lynn Valley.
HALDIMAND:			
Canborough	Canborough	James N. Paget, Prop	Canborough.
	Attercliffe Station	Harold Eagle, Prop	Attercliffe Sta
Cayuga, N	Kohler	J. A. McIntosh, Prop	Kohler.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
HALDIMAND.—*Continued*			
Cayuga, S	South Cayuga	Harold Eagle, Prop	Attercliffe Sta.
Dunn	Lake View	Francis Splatt, Prop	Dunnville.
Rainham	*Selkirk	Joel Hoover, Sec	Selkirk.
Seneca	Tyneside	J. M. Clysdale, Sec	Tyneside.
	York	James N. Paget, Prop	Canborough.
Walpole	Jarvis West	W. C. Parsons, Prop	Jarvis.
WELLAND :			
Bertie	Willowdale	J. F. Beam, Prop	Black Creek.
Crowland	Welland Cheese Co	Robert Chaffey, Sec	Welland Sta.
Wainfleet	Forks Road	J. S. Wills, Sec	Winger.
	†Johnson's	Hamilton Johnson, Prop	Wellandport.
LAMBTON :			
Bosanquet	Forest	Wm. Lougheed, Sec	Forest.
	Ridge Tree	Alex. Jamieson, Sec	Thedford.
Brooke	*Brooke and Warwick	R. J. Kelly, Sec	Watford.
	Walnut	W. G. Willoughby, Prop	Walnut.
Dawn	†Mawlam's Grove	J. H. Powell, Sec	Shetland.
Enniskillen	Wilsoncroft	John L. Wilson, Sec	Wilsoncroft.
Plympton	Gala Bank	Wm. Douglas, Manager	Camlachie.
	South Plympton	A. D. Anderson, Sec	Wyoming.
	Uttoxeter	Wm. Douglas, Manager	Camlachie.
Sarnia	Vyner	Duncan McDonald, Sec	Mandaumin.
Sombra	Sombra Cheese Mfg. Co	W. S. Howell, Sec	Thornyhurst.
Warwick	Maple Grove	B. Batchelor, Prop	Birnam.
	Thompson Cheese Mfg. Co.	F. Patterson, Sec	Arkona.
	*Warwick	J. S. Clarke, Prop	Warwick West.
HURON :			
Ashfield	Ashfield Ch. & B. Co	Miss L. E. Johnston, Sec	Lanes.
Colborne	West Huron	Wm. Jones, Sec	Nile.
Grey	Ethel	Robert Barr, Prop	Ethel.
	*Grey and Morris	Daniel Stewart, Sec	Brussels.
	Molesworth	Henry Coghlin, Sec	Molesworth.
	Walton	R. H. Ferguson, Sec	Walton.
Howick	Fordwich	Michael Daum, Sec	Kurtzville.
	Peoples	W. S. McKercher, Sec	Wroxeter.
	Springbank	George Padfield, Sec	Gorrie.
Hullett	Constance	J. B. Henderson, Pres	Seaforth.
Stephen	*Centralia	C. Smith, Sec	Centralia.
	Corbett	John Corbett, Pres	Corbett.
Turnberry	Bluevale	John Burgess, Sec	Bluevale.
Wawanosh, E	Belgrave	George Hood, Sec	Sunshine.
BRUCE :			
Amabel	Wiarton	George H. Johnson, Prop	Wiarton.
Arran	Allenford	D. C. McKinnon, Sec	Allenford.
	Tara	J. D. Tobey, Sec	Tara.
Brant	Brant	Daniel Sullivan, Sec	Malcolm.
	Dunkeld	Thos. A. Chisholm, Sec	Dunkeld.
Bruce	*Climax	Andrew Kirkconnell, Pres	Tiverton.
	Underwood	Amos Hilker	Underwood.
Carrick	*Belmore	D. McDonald, Sec	Belmore.
Elderslie	Williscroft	John McKellar, Prop	Tiverton.
Greenock	Pinkerton	D. Pinkerton, Prop	Pinkerton.
	Riversdale	Wm. Waddell, Sec	Kinloss.
Huron	Huron	Adam Ruttle, Pres	Ripley.
	Paramount	P. R. McNay, Sec	Lucknow.
	Pine River	Wm. Manson, Pres	Pine River.
	Ripley	H. W. Farnell, Sec	Ripley.
Kincardine	*Bervie	James Glass, Sec	Bervie.
	*Glammis	W. M. Atton, Sec	Glammis.
	Millarton	Alex. McNeil, Sec	Kincardine.
Kinloss	Lucknow	F. C. McInnes, Prop	Lucknow.
Saugeen	Burgoyne	James White, Sec	Burgoyne.
	Star	John Muir, Sec	Port Elgin.
GREY :			
Artemesia	Flesherton	James Brodie, Sec	Vandeleur
	Markdale	H. D. Irwin, Sec	Markdale.
Egremont	Boothville	Wm. Ramage, Sec	Dromore.
Holland	Chatsworth	James McComb, Sec	Arnott.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office. Address.
GREY.—*Continued.*			
Normanby	Alsfeldt Ch. & B. Co	C. H. Peterson, Sec	Clifford.
	Mount Forest	Joseph Tuck, Sec	Mount Forest.
	Varney	J. W. Blyth, Prop	Varney.
Osprey	Badjeros	George Bailey, Treas	Shrigley.
	Feversham	D. W. Clinton, Sec	Maxwell.
	Singhampton	L. L. Currie, Sec	Singhampton.
Proton	Dundalk	Robt. Russell, Sec	Dundalk.
	Ventry	James Cavanagh, Sec	Ventry.
	*Victoria	James Love, Sec	Inistioge.
SIMCOE:			
Flos	Crossland	Robert Elrick, Sec	Elmvale.
	Edenvale	John Benson, Sec	Iris.
Nottawasaga	Avening	W. G. Carruthers, Sec	Avening.
	Glen Huron	James Connor, Sec	Glen Huron.
	Lavender	Samuel Flack, Prop	Lavender.
	Stayner	W. B. Sanders, Sec	Stayner.
Orillia	Northbrook	J. Malone, Sec	Orillia.
Tay	North River	E. W. Kitchen, Sec	Lovering.
	*Vasey	George Jones, Sec	Vasey.
Tecumseth	Cookstown	Briden Spence, Pres	Cookstown.
Tiny	Wyebridge	John Adams, Sec	Wyebridge.
MIDDLESEX:			
Adelaide	Kerwood	H. P. Richardson, Prop	Kerwood.
	Keyser	Hugh E. Wilson, Prop	Arkona.
Biddulph	Cedar Vale	Michael Blake, Sec	Elginfield.
	North Middlesex	George W. Fox, Sec	Lucan.
Caradoc	Caradoc, Mount Carmel (2).	D. Leitch, Prop	Strathroy.
	Muncey Road	Chas. F. Price, Sec	Burwell Road.
Delaware	Delaware	H. J. Smith, Sec	Lambeth.
Dorchester, N	Burnside	S. Barr, Sec	Mossley.
	Dorchester Station	Wm. Uglow, Sec	Putnam.
	Gladstone	B. Swales, Sec	Gladstone.
	Gore	W. L. Bongard, Prop	Crampton.
	Harrietsville	R. Facey, Prop	Harrietsville.
	Thames	James Creighton, Pres	Nilestown.
Ekfrid	Appin	Hector McFarlane, Sec	Glencoe.
	*Mayfair	John Cooper, Sec	Melbourne.
London	Geary	John Geary, Prop	London.
	Melrose	Thos. Wilson, Prop	Ferguson.
	North Branch	Fred. Bailey, Sec	Rebecca.
	Proof Line	James Tier, Sec	Arva.
Metcalfe	Napier	Wm. Ormerod, Prop	Napier.
	Sifton	W. S. Sifton, Prop	Cairngorm.
Mosa	Glencoe	Hector McFarlane, Sec	Glencoe.
Nissouri, W	Cherry Hill	Hope Webster, Sec	Thamesford.
	Evelyn	Meade N. Wright, Sec	Thorndale.
	West Nissouri	W. Lee, Sec	Thorndale.
Westminster	Belmont	John Evans, Prop	Belmont.
	Glanworth	S. A. Smith, Prop	Glanworth.
	North Street	H. B. Stevens, Prop	Lambeth.
	Pond Mills	Andrew Elliott, Sec	Pond Mills.
	Westminster	Wm. Fitzpatrick, Prop	Belmont.
	White Oak	A. F. Anderson, Sec	Wilton Grove.
OXFORD:			
Blandford	Bright	John Riesberry, Pres	Bright.
	Eastwood	W. E. Hopkins, Sec	Eastwood.
Blenheim	Soho	J. E. Pounds, Sec	Drumbo.
Dereham	Brownsville Co. (3)	W. A. Elliott, Sec	Brownsville.
	*Dereham and Norwich	Wm. Jones, Sec	Mount Elgin.
	Dereham and West Oxford.	James Mayberry, Sec	Salford.
	Lawson	J. C. Rumble, Prop	Holbrook.
	Mount Elgin	Wm. Pow, Sec	Mount Elgin.
	Prouse	Thomas Prouse, Prop	Dereham Centre
	Salford	James Mayberry, Sec	Salford.
	Verschoyle	J. H. Wilkinson, Prop	Verschoyle.
Nissouri, E	Kintore	J. W. Sutherland, Sec	Medina.
	Kintore Branch	Thomas Alderson, Prop	Kintore.
	*Lakeside	Robert Marshall, Pres	Lakeside.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
OXFORD.—*Continued.*			
Nissouri, E	Murray	Wm. McLaren, Sec	St. Marys.
	*Nissouri E. Cheese Co	George Sutherland, Sec	Thamesford.
	Thamesford	David Lawrence, Sec	Thamesford.
Norwich, N	Dunkin	Gilbert Dunkin, Prop	Norwich.
	Norwich Junction	John McKee, Sec	Norwich.
	*Losee, *Burgessville (2)	I. L. Farrington, Prop	Norwich.
Norwich, S	Springford	F. C. Anstice, Prop	Springford.
	Summerville	G. H. Treffey, Sec	Hawtrey.
Oxford, E	Diamond	J. McConnell, Sec	Vandecar.
	E. and W. Oxford Ch. Co	M. S. Schell, Sec	Woodstock.
	*Oxford	I. L. Farrington, Prop	Norwich.
Oxford, N	Beachville	James Ireland, Prop	Beachville.
	Maple Leaf	Thomas Caddey, Prop	Banner.
	North Oxford	W. H. Sutherland, Sec	Ingersoll, Box 111
Oxford, W	*Sweaborg	E. Hunter, Prop	Sweaborg.
	West Oxford	H. F. Boyse, Pres	Ingersoll.
Zorra, E	Anderson	Douglas Bruce, Sec	South Zorra.
	Blandford and E. Zorra	A. Miller, Sec	Walmer.
	German Union	P. J. Altemann, Sec	New Hamburg.
	Honey Grove	Robert Morton, Prop	Cassel.
	Spring Creek	Andrew McKay, Sec	Woodstock.
	Strathallan	Alex. King, Sec	Hickson.
Zorra, W	Brooksdale	John A. McKay, Sec	Brooksdale.
	Coldsprings	Robert W. Young, Sec	Youngsville.
	Red Star	W. H. Sutherland, Sec	Ingersoll, Box 111
	West Zorra	Hugh S. MacKay, Sec	Embro.
BRANT:			
Brantford	Grand River	George Hately, Sec	Brantford, Box 42
	North Brant	John German, Sec	St. George.
Burford	Cathcart	Thos. D. Costin, Prop	Cathcart.
	*Harley	I. L. Farrington, Prop	Norwich.
	*New Durham	James Paterson, Sec	New Durham.
Dumfries, S	*St. George	John Richardson, Prop	St. George.
Oakland	*Oakland	George Taylor, Sec	Oakland.
PERTH:			
Blanshard	Blanshard	George B. Webster, Sec	Science Hill.
Downie	Avonbank	Wm. Tier, Sec	Motherwell.
	Black Creek	Thos. Ballantyne, Prop	Stratford.
	Downie	H. A. Southwick, Prop	Avonton.
	Gore of Downie	John Dempsey, Prop	Fairview.
	*Kastnerville	George Barthel, Pres	Stratford.
Easthope, N	Avondale	R. M. Ballantyne, Prop	Stratford.
Easthope, S	Tavistock	A. T. Bell, Sec	Tavistock.
Ellice	Classic	D. A. Dempsey, Prop	Stratford.
	Ellice and Logan	J. J. Brown Sec	Kinkora.
Elma	Donegal	Alex. McKenzie, Prop	Donegal.
	Elma	Wm. Lochhead, Sec	Atwood.
	†Elma and Mornington	James Burke, Sec	Britton.
	Elmbank	Robert Cleland, Prop	Listowel.
	Monkton	Andrew Erskine, Sec	Monkton.
	Newry	John Morrison, Prop	Newry.
	Silver Corners	James Morrison, Prop	Henfryn.
	Trowbridge	John Adams, Sec	Trowbridge.
Fullarton	Cold Creek	Thos. Stacey, Prop	Fullarton.
Logan	*Willow Grove	Wm. Pomeroy, Prop	Mitchell.
Mornington	Milverton	G. E. Goodhand, Prop	Milverton.
	Newton	Hugh, Jack, Prop	Newton.
Wallace	Cedar Grove	G. V. Poole, Sec	Wallace.
	Wallace	Jeptha Vankleeck, Sec	Listowel.
WELLINGTON:			
Arthur	Conn	G. J. McCulloch, Sec	Conn.
	Kenilworth	George Cushing, Sec	Kenilworth.
Luther, W	Luther and Arthur	John McNab, Sec	Arthur.
Maryborough	Maryborough	Wm. Wilson, Sec	Rothsay.
	*Riverbank	A. R. McLachlan, Sec	Rothsay.
	Wyandotte	Thos. J. Paterson, Sec	Moorefield.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
WELLINGTON.—*Contin'd.*			
Minto	Harriston	W. D. McLellan	Harriston.
	*Minto and Arthur	James Wiseman, Sec	Cotswold.
Peel	Goldstone	W. T. Whale, Sec	Goldstone.
	Peel	John Hought, Sec	Glenallan.
WATERLOO:			
Dumfries, N	Galt	W. P. Clay, Prop	Galt.
Wellesley	Honey Grove	J. W. Chalmers, Prop	Poole.
Wilmot	Oak Grove	George Cousins, Prop	New Hamburg.
	*Philipsburg	John D. Shantz, Prop	Baden.
DUFFERIN:			
Amaranth	Laurel	Jonathan Varcoe, Sec	Laurel.
Melancthon	Shelburne	J. Walker, Sec.-Treas	Shelbourne.
Mono	Camilla	Wm. Dynes, Sec	Granger.
LINCOLN:			
Caistor	Caistorville	A. W. Edwards, Prop	Caistorville.
Clinton	Campden	Joseph N. Fry, Prop	Campden.
Gainsborough	Bismarck	J. L. Heaslip, Sec	Wellandport.
WENTWORTH:			
Ancaster	†Alberton	Edward Morwick, Sec	Alberton.
	*Renforth	D. Hamilton, Sec	Renforth.
Beverly	*Beverly	George Paterson, Prop	West Flamboro'.
	Lynden	J. A. Bennett, Sec	Copetown.
	Sheffield	P. H. Green. Prop	Sheffield.
Binbrook	Woodburn	Wm. Ptolemy, Sec	Woodburn.
Flamborough, W	Freelton	David Brown, Sec	Freelton.
HALTON:			
Trafalgar	Milton	D. M. Harrison, Sec	Milton.
PEEL:			
Chinguacousy	Mono Road	J. W. Shields, Sec	Mono Road.
	Norval	R. Groat, Prop	Georgetown.
YORK:			
Georgina	Sutton	K. Greenwood, Sec	Sutton, West.
Gwillimbury, E	Newmarket	Chas. E. Lewis, Sec	Newmarket.
King	Eversley	Henry Rogers, Sec	Eversley.
	Kettleby	W. E. Fox, Pres	Kettleby.
Markham	Ringwood	A. B. Grove, Prop	Ringwood.
Whitchurch	Aurora	A. Love, Sec	Aurora.
ONTARIO:			
Brock	Derryville	Wm. Harrison, Sec	Cannington.
Mara	Gamebridge	W. M. Stewart, Sec	Gamebridge.
	Uptergrove	George Read, Sec	Uptergrove.
Reach	Manchester	W. F. Weir, Sec	Prince Albert.
Whitby	Brooklin	D. Holliday, Sec	Brooklin.
Whitby, E	*Geneva	....	Columbus.
DURHAM:			
Cartwright	*Blackstock	G. L. McLaughlin, Sec	Blackstock.
Cavan	Fraserville	Joseph Madill, Sec	Fraserville.
	Ida	W. H. Lough, Sec	Ida.
	Mt. Pleasant	C. J. Rutherford, Prop	Mt. Pleasant.
	Millbrook	James Brock, Sec	Millbrook.
Clarke	Newtonville	W. J. Jones, Sec	Clarke.
	Orono	G. L. Waddell, Sec	Orono.
Darlington	Darlington	W. H. Montgomery, Sec	Solina.
	Hampton	F. L. Ellis, Sec	Hampton.
Hope	Hope	H. A. Walker, Sec	Welcome.
	Perrytown	Fred. Currelley, Sec	Canton.
Manvers	Fleetwood	James Dean, Sec	Lifford.
NORTHUMBERLAND:			
Alnwick	Roseneath	Dennis Keogan, Sec	Hastings.
Brighton	Brighton and Murray	J. W. Hennessey, Sec	Wooler.
	*Cedar Hill	Hugh Strong, Prop	Hilton.
	*Codrington	A. D. Richards, Pres	Codrington.
	Hilton	A. E. Thorne, Sec	Hilton.
	Standard	Wm. Bensley, Prop	Warkworth.
Cramahe	Castleton	O. M. Alger, Sec	Castleton.
	Cramahe	R. A. Brintnall, Treas	Edville.
	Morganston	G. L. Duncan, Pres	Morganston.
	Salem	S. E. Dixon, Sec	Colborne.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
NORTHUMBERLAND—*Con.*			
Haldimand	Grafton	Thos. Hoskin, Sec	Grafton.
	Spring Valley	James Roberts, Sec	Fenella.
	Wicklow	J. W. Roberts, Sec	Grafton.
Hamilton	Baltimore	Wm. Peters, Sec	Baltimore.
	Crown	F. W. Philip, Prop	Precious Corners.
	North Star	Chas. Horsburgh, Sec	Plainville.
Monaghan, S	Bensfort	John Riddell, Sec	Bensfort.
Murray	Fountain	Sheldon Moran, Sec	Frankford.
	Gwynne	W. H. Potts, Sec	Smithfield.
	Queen	W. A. Hendrick, Sec	Frankford, Box 17
Percy	*Brickley	P. J. Convey, Sec	Brickley.
	Model	Douglas Kingsbury, Sec	Hastings.
	*Warkworth	T. B. Carlaw, Pres	Warkworth.
Seymour	Brae	Gilbert Bedford, Sec	Campbellford.
	Crow Bay	James C. Cleugh, Pres	Sarginson.
	Empire	Robert White, Pres	Campbellford.
	Forest	Alex. Haig, Sec	Menie.
	*I. X. L.	John Govan, Pres	Campbellford.
	Meyersburg	T. W. Dilworth, Prop	Meyersburg.
	Prince of Wales	James Shillingham, Prop	Burnbrae.
	Rylestone	Arch. Morton, Prop	Springbrook.
	*Seymour West	John McKelvie, Pres	Campbellford.
	Stanwood	John McKenzie, Pres	Stanwood.
	*Valley	Patrick Kelleher, Pres	Campbellford.
	Woodland	Jesse Valleau, Prop	Campbellford.
PRINCE EDWARD:			
Ameliasburg	*Ameliasburg	R. J. Graham, Prop	Belleville.
	*Mountain View	John Potter, Sec	Mountain View.
	Quinte	Wm. R. Dempsey, Sec	Rednerville.
	*Weller's Bay	James Johnston, Sec	Consecon.
Athol	Cherry Valley	Luther Platt, Sec	Cherry Valley.
Hallowell	Bloomfield	Egerton Switzer, Prop	Bloomfield.
Hillier	Cloverdale	Dorland & Hubbs, Props	Wellington.
Marysburg, N	Central	G. N. Rose, Sec	Waupoos.
	Union	R. Davison, Sec	Picton.
Marysburg, S	Black Creek	Martin W. Call, Sec	Milford.
	Point Traverse	Alva Rose, Sec	South Bay.
	*Royal Street	W. T. B. Striker, Prop	Milford.
Sophiasburg	*Big Island	Ryerson Rankin, Sec	Demorestville.
	*Grape Vale	J. P. Roblin, Prop	Fish Lake.
	Maple Leaf	Alfred Foster, Prop	Fish Lake.
	*Northport	Ira David, Pres	Solmesville.
LENNOX AND ADDINGTON:			
Adolphustown	Platt	Thos. F. Gibbs, Sec	Adolphustown.
Amherst Island	Amherst Island	W. H. Montray, Sec	Stella.
Camden	Camden East	G. E. Hinch, Sec	Camden East.
	Centreville, Croydon (2)	Wm. Whelan, Prop	Centreville.
	Enterprise, Whitman Creek.	A. B. Carscallen, Sec	Enterprise.
	Moscow	Vanluven Bros., Props	Moscow.
	Newburgh	G. A. Aylesworth, Sec	Newburgh.
Ernestown	Bath, Union (2)	W. R. Gordanier, Sec	Morven.
	Empey	W. F. Gerow, Prop	Napanee.
	Farmer's Friend	L. L. Gallagher, Prop	Wilton.
	Metzler	R. Metzler, Prop	Odessa.
	Odessa	J. C. Fraser, Sec	Odessa.
Fredericksburg, N	Excelsior	Ogden Hinch, Prop	Napanee.
	Napanee	W. N. Dollar, Sec	Napanee.
	Palace Road	W. F. Gerow, Prop	Napanee.
Fredericksburg, S	Conway	E. H. Phippen, Prop	Sandhurst.
	*Sillsville	James Rennie	Sillsville.
Kaladar	*Flinton	Thomas Welsh	Flinton.
Richmond	Forest Mills	J. J. Doyle, Sec	Kingsford.
	Selby	Ira B. Hudgins, Sec	Selby.
Sheffield	Clareview	John Garrett, Sec	Erinsville.
	Sheffield	D. E. Rose, Sec	Tamworth.
	Tamworth Co-operative	J. J. Barry, Sec	Tamworth.
FRONTENAC:			
Barrie	Cloyne	J. A. Carscallen, Sec	Northbrook.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
FRONTENAC.—*Continued.*			
Bedford	Bedford Mills	J. P. Tett, Prop	Bedford Mills.
	*Fermoy, *Salem (2)	John McGuire, Sec	Westport.
	Iron Junction	R. A. Popplewell, Prop	Godfrey.
	Tichborne	Thomas Duffy, Prop	Tichborne.
Hinchinbrooke	Parham	G. A. Smith, Prop	Parham.
Howe Island	Thousand Island	John Prior, Sec	D'Arcy.
Kennebec	Arden	W. W. Pringle, Pres	Arden.
Kingston	Glenvale	J. Watts, Sec	Glenvale.
	*Lake Shore	H. E. Wartman, Pres	Portsmouth.
	Union	Joshua Knight, Sec	Elginburg.
	*Woodbine	James Sproul	Westbrook.
Loughborough	Forest	John Moreland, Prop	Sydenham.
	Perth Road	Wm. Guthrie & Son, Props	Perth Road.
Oso	Crow Lake	D. N. Jackson, Prop	Tichborne.
	Sharbot Lake Thomson & Avery	Thomson & Avery, Props	Sharbot Lake.
	Zealand	John B. Hughes, Prop	Brooke.
Pittsburg	Central	Thomas Anglin, Sec	Atkinson.
	Granite Hill	F. J. Henderson, Prop	Pittsferry.
	Jackson	E. W. Jackson, Prop	Gananoque.
	Keenan & Son	Thos. Keenan, Prop	Kingston.
	Leo Lake	Mrs. F. F. Franklin, Sec	Brewer's Mills.
	Maple Leaf	E. J. Agnew, Prop	Joyceville.
	Morning Star	Daniel McLean, Prop	Eric.
	Pine Grove	John Dillon, Prop	Brewer's Mills.
	*Pine Hill	David Trotter	Cushendell.
	Rose Hill	James Lane, Prop	Dufferin.
	*Woodburn	John Bennett	Willetsholme.
Portland	Bellrock, Hartington (2)	Vanluven Bros., Props	Moscow.
	*Bradshaw	Arch. Bradshaw, Sec	Harrowsmith.
	‡Harrowsmith	L. L. Gallagher, Sec	Wilton.
	*Verona	Howard Reynolds, Prop	Verona.
Storrington	*Battersea	John Hughes	Battersea.
	Bear Creek	James Greenlees, Prop	Sunbury.
	Cold Springs	C. Langwith, Prop	Sunbury.
	Duffs	Wm. Duff, Prop	Inverary.
	Excelsior	Mrs. George Clark, Sec	Battersea.
	*Lake Opinicon	Adam Barr, Prop	Inverary.
	*North Shore	John Sills	Battersea.
	Sand Hill	Peter Ritchie, Sec	Sunbury.
	*Storrington	L. W. Murphy, Prop	Brewer's Mills.
	*Sunbury	Wm. McGarry, Sec	Sunbury.
Wolfe Island	Gilt Edge	D. H. McDonell, Sec	Allen.
	St. Lawrence	Rattray & Kenney, Props	St. Lawrence.
	Wolfe Island	John M. Horne, Prop	Wolfe Island.
LEEDS:			
Bastard and Burgess, S.	*Clear Spring	A. Gallagher	Portland.
	*Delta	Strong & Davison, Props	Delta.
	*Farmers' Pride	Arch. Stevens, Sec	Philipsville.
	Grand Central	Smith & Knapp, Props	Chantry.
	Myers', *People's Mutual (2)	Thomas Myers, Prop	Forfar.
	*Plum Hollow	Smith & Knapp, Props	Chantry.
	*Poole's	Wm. N. Poole, Prop	Freeland.
	Reliable	Alex. Rogers, Prop	Newboyne.
	*Smith's Valley	R. A. Sheldon, Sec	Harlem.
Crosby, N	*Ardmore, *Westport	John McGuire, Sec	Westport.
	*Model	T. C. Singleton, Prop	Newboro'.
Crosby, S	Clear Lake Union	W. L. Leggett, Sec	Singleton.
	Dominion	E. V. Halliday, Pres	Elgin.
	*Elgin Model, *Rockdale (2)	Dargavel & Murphy, Props	Elgin.
	Maple Grove, Morton (2)	H. F. Metcalfe, Sec	Morton.
	*Ontario	J. H. Singleton, Prop	Singleton.
Elizabethtown	*Anvern	Walker & Raphael, Props	Fairfield East.
	*Barlow	Smith & Knapp, Props	Chantry.
	Glen Buell	C. J. Gilroy, Prop	Glen Buell.
	Kilborn Springs	Walter Billings, Sec	Lyn.
	Maple Grange	Joshua Gilroy, Prop	Lyn.
	*North Star	P. W. Strong, Prop	Brockville.

‡ Received too late for tabulation.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
LEEDS.—*Continued.*			
Elizabethtown	*Orchard Valley	R. J. Jelly, Sec	Jellyby.
	Palace	Mrs. B. Loverin, Sec	Greenbush.
	Rock Bottom	John L. Phillips, Prop	Brockville.
	Royal Dominion	T. W. Horton, Prop	New Dublin.
	*Smith's	Thomas Smith, Prop	Greenbush.
Kitley	Farmer's Choice	Henderson Bros., Props	Athens.
	Farmer's Friend	Smith & Knapp, Props	Chantry.
	Glen Elm Robinson Silver Creek	Cameron & Coad, Props	Smith's Falls and Toledo.
	Newbliss	John MacKay, Sec	Jasper.
Leeds & Lansdowne, F.	Birmingham	F. H. Dawson, Sec	South Lake.
	Bruce, Fairfax	James Keating, Sec.	Lansdowne.
	Coldbrook	J. C. Stafford, Prop	Lansdowne.
	Deerlick	J. J. Lappan, Sec	Lansdowne.
	*Dulcemain	Wm. Sliter, Sec	Warburton.
	Fairplay	W. A. Blanchard, Sec	Gananoque.
	*Gananoque	James Donevan, Sec	Gananoque.
	*Gananoque Junction	John Connor, Prop	Gananoque.
	Lorne	J. C. Stafford, Prop	Lansdowne.
	*Mountain View	James Donevan, Sec	Gananoque.
	Oak Leaf	M. K. Everttts, Prop	Easton's Corners
	People's	H. McCalpin, Prop	South Lake
	Rapid's Valley	James Keating, Sec	Lansdowne.
	*St. Lawrence	Wm. Latimer, Prop	Lansdowne.
	Sand Bay	B. Herbison, Sec	Sand Bay.
	Tilley	J. W. Grier, Sec	Lansdowne.
	Warburton	M. W. Steacy, Sec	Warburton.
Leeds & Lansdowne, R.	Cold Glen	J. Willoughby, Prop	Ellisville.
	†Gilt Edge	G. H. Bowen, Pres	Seeley's Bay.
	*Lakeview	W. Tye, Prop	Lyndhurst.
	Lyndhurst	A. G. Halladay, Prop	Lyndhurst.
	Seeley's Bay	R. Gardiner, Prop	Seeley's Bay.
	Springvale	H. F. Metcalfe, Sec	Morton.
Yonge and Escott	‡Caintown Union	W. J. White, Sec	Caintown.
	Elbe	Bates & Brown, Props	Elbe Mills.
	Farmersville	Horace Brown, Prop	Athens.
	Holland	H. C. Lynch, Sec	Escott.
	Junetown, B	Alvin Avery, Sec	Caintown.
	Leeder	Benj. Leeder, Prop	Caintown.
	Leeds County	Purvis & Ferguson, Props	Yonge Mills.
	Mallory's Produce	A. W. Mallory, Prop	Mallorytown.
	*Mallorytown Union	D. E. Forrester, Sec	Mallorytown.
	*Rockfield Union	W. B. Warren, Sec	Rockfield.
	*Ronan's	Alex. McDougall, Prop	Addison.
	Springfield Union	N. Hutchinson, Sec	Escott.
GRENVILLE:			
Augusta	Algonquin	John Edwards, Prop	Algonquin.
	Charleville, Domville Grenville, Glenmore	Rufus Earl, Prop J. W. Place, Sec	Algonquin. Prescott.
	*North Augusta	J. C. Winkworth, Sec	North Augusta.
	Roebuck	R. Connell, Sec	Roebuck.
	*St. Lawrence Star	John McLean, Sec	Maitland.
	South Branch	Thos. E. Meech, Prop	North Augusta.
	Willow	Ross & Bissell, Props	Brockville.
Edwardsburg	Eager's No. 12	R. J. Bennett, Sec	Glensmail.
	Limekiln	S. H. Webb, Prop	Cardinal.
	Mainsville (Eager's No. 7)	Wm. Eager, Prop	Morrisburg.
	Maple Ridge	Lawrence Rooney, Sec	Prescott.
	Millar's No. 1	George Fairbairn, Sec	Spencerville.
	Millar's No. 2	Thos. J. Miller, Sec	Spencerville.
	Millar's No. 3	Arch. Fraser, Sec	Spencerville.
	*Park Street	A. Linnen	Spencerville.
	Perry Creek	Dawson & Curry, Prop	Prescott.
	St. Lawrence	S. H. Webb, Prop	Cardinal.
	Shanley (Eager's)	Wm. Holmes, Sec	Shanley.
	*Union	J. Hyndman	Hyndman.
Gower, S	Eager's No. 1	Wm. Eager, Prop	Morrisburg.

‡ Received too late for tabulation.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
GRENVILLE.—*Continued.*			
Oxford on Rideau	*Anderson	John Anderson, Prop	Oxford Mills.
	*Bishop's Mills	Albert Alexander, Sec	Bishop's Mills.
	Burritt's Rapids	Edward Kidd, Prop	North Gower.
	Eager's No. 20	Wm. Eager, Prop	Morrisburg.
	Graham, *Kemptville	O. Bush, M.P.P., Prop	Kemptville.
Wolford	Old Fairfield, Rideau Valley	M. K. Everetts, Prop	Easton's Corners.
	Union	George Baker, Sec	Merrickville.
DUNDAS:			
Matilda	Advance No. 1	Thos. Scott, Prop	Glen Stewart.
	Advance No. 3	Liezart & McIntyre, Props	Dixon's Corners.
	Eager's No. 6, 10 and 22	Wm. Eager, Prop	Morrisburg.
	Farmer's (Clover Brand)	George Reichardt, Sec	Iroquois.
	Iroquois	T. W. Hare, Sec	Iroquois.
	Maple Grove No. 2	Thos. McDonald, Prop	Morrisburg.
	Model No. 1	E. A. Roode, Prop	Hulbert.
	Morrisburg	C. E. Robertson, Sec	Morrisburg.
Mountain	Eager's Nos. 3 and 18	Wm. Eager, Prop	Morrisburg.
	Rose & Co. No. 1	John McTavish, Sec	Vancamp.
Williamsburg	*Archer	G. C. Tracy, Sec	Archer.
	Bouck's Hill	E. A. Sullivan, Salesman	Bouck's Hill.
	Bowman	Wm. Bowman, Sec	Morrisburg.
	*Colquhoun, *Elma, *Hoosic, *Grantley	John N. Logan, Prop	Elma.
	Dennison	R. Dennison, Prop	Archer.
	Dunbar	Isaiah Barkley, Sec	Dunbar.
	Eager's Nos. 5 and 26	Wm. Eager, Prop	Morrisburg.
	Glen Becker	Ira W. Becksted, Sec	Morrisburg.
	Maple Leaf	R. W. Linton, Prop	Winchester.
	North Williamsburg	J. J. Dickey, Prop	Brockville.
	Riverside	B. H. Hayunga, Sec	Morrisburg.
Winchester	Eager's Nos. 2, 13, 24 and 27	Wm. Eager, Prop	Morrisburg.
	*Kendrick & Carlisle	W. R. Allison, Sec	Dunbar.
	Maple Ridge	R. D. Fulton, Sec	Chesterville.
	Morewood (Union)	George Carlyle, Sec	Morewood.
	Rose & Co. No. 2	John McTavish, Sec	Vancamp.
	White Globe No. 1	Alpin Campbell, Prop	Ormond.
STORMONT:			
Cornwall	*Grant's Corners	Wm. Irvine, Prop	Martintown.
	*Harrison's Corners, *Mille Roches, *St. Andrew	P. N. Tait, Prop	Mille Roches.
	Moulinette	J. G. Snetsinger, Pres	Moulinette.
	Silmser's Corners	John B. May, Prop	Eamer's Corners.
	White Rose	Tassie Tobin, Sec	Cornwall Centre.
Finch	Ashburn, *South Finch, *Steels, *Connaught	J. N. Logan, Prop	Elma.
	Berwick No. 1	James Small, Prop	Berwick.
	Cannamore	Wm. Campbell, Prop	Cannamore.
	*Central Co-operation	Gordon Bogart, Sec	Berwick.
	Crysler	F. R. L. Crysler, Sec	Crysler.
	Eager's Nos. 25 and 30	Wm. Eager, Prop	Morrisburg.
	Goldfield No. 1	C. H. Wood, Prop	Maxville.
	*Goldfield No. 5	Alex. Carr, Sec	Goldfield.
Osnabruck	Dickenson's Landing	J. R. Eaman, Sec	Wales.
	*Bog	Robert Valance	Osnabruck Centre
	Farran's Point	J. R. Farran, Sec	Farran's Point.
	Lunenburg	H. McEwan, Prop	Lunenburg.
	*Newington	C. Wood, Sec	Newington.
	North Osnabruck	Gordon Baker, Treas	Osnabruck Centre
	*Pleasant Valley	W. Hollister, Sec	North Valley.
	White Clover	G. H. Jackson, Sec	Gallingertown.
Roxborough	Allangrove (4 factories)	D. M. Macpherson, Prop	Lancaster.
	*Lodi	John McLean, Prop	Lodi.
	Moose Creek	Joseph Vance, Prop	Moose Creek.
	*Tayside, *Rosedale	C. H. Wood, Prop	Maxville.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
GLENGARRY:			
Charlottenburg	Allangrove (8 factories)	D. M. Macpherson, Prop	Lancaster.
	Berwick No. 5	James Small, Prop	Berwick.
	Camerontown	Thos. McDonald, Prop	Morrisburg.
	*Lily White	W Irvine, Prop	Martintown.
	*Tyotown	D. Loney, Prop	Tyotown.
Kenyon	Allangrove (5 factories)	D. M. Macpherson, Prop	Lancaster.
	Berwick No. 4	James Small, Prop	Berwick.
	*Baltic, *Greenfield, *Loch Garry	J. J. Cameron, Sec	Greenfield.
	*Spring Creek (4 factories)	W. D. McLeod, Prop	Kirkhill.
Lancaster	Allangrove (5 factories)	D. M. Macpherson, Prop	Lancaster.
	*Bredalbane	J. C. McLaurin, Sec	Dalkeith.
Lochiel	*Hawkesbury No. 3	James Hurley, Sec	Barb.
	Lorne	Valentine Chisholm, Sec	Lochiel.
	*Maple Grove	Allan Campbell, Sec	Dalkeith.
	*Spring Creek (5 factories)	W. D. McLeod, Prop	Kirkhill.
PRESCOTT:			
Alfred	Alfred	G. Parisien, Sec	Alfred.
	Bolt	J. R. Brownrigg, Sec	Alfred.
	B 1	Julien Brisebois, Sec	Alfred.
	D 1	Julian Bricault, Sec	Lefaivre.
	Hughes	Eli Robinson, Sec	Treadwell.
	St. Catherine	David Gratton, Sec	Alfred.
	*	Caliste Clement, Sec	Alfred.
	*	Joseph Racine, Sec	Lefaivre.
	*	Joseph Meloche, Prop	Lefaivre.
Caledonia	*Fenaghvale	J. H. Malloy, Sec	Sandown.
	Star No. 1	Felix Cadieux, Sec	Routhier.
Hawkesbury, E	Apple Bee Nos. 1 and 2	Paul Labrosse, Sec	St. Eugene.
	*Albert Lee	Chauncey Wyman	Chute à Blondeau
	*Bright Star	Moise Lafrance	St. Eugene.
	*Cardinal	Edmond Cardinal	Mongenais.
	Elm Grove	John McNish, Prop	Vankleek Hill.
	*Golden Hill	Denis Hurley, Prop	Vankleek Hill.
	*Hawkesbury Nos. 1 & 2	James Hurley, Sec	Barb.
	Maple Leaf No. 1	J. C. McAlpine, Prop	St. Ann, Prescott.
	*Maple Leaf No. 2	Joseph Seguin	Point Fortune.
	Maple Grove	Antoine Paiement, Sec	St. Ann, Prescott.
	*Monolea No. 1	James Ross, Prop	Hawkesbury.
	*Monolea No. 2	John Ross, Prop	Hawkesbury.
	*Spring Creek (3 factories)	Thomas McCuaig, Prop	Vankleek Hill.
Hawkesbury W	Hawkesbury	W. H. Byers, Prop	Hawkesbury.
	*McAlpine	W. P McAlpine, Prop	Vankleek Hill.
	*Spring Creek (3 factories)	McCuaig, Cheney & Co., Props	Venkleek Hill.
	Spring Grove	S. N. Morrison, Prop	Henry.
	Star No. 1	A. F. Arnold, Prop	Vankleek Hill.
Longueuil	Hawkesbury No. 4, L'Orignal	R. H. Marston, Sec	Cessburn.
	*	Secretary	Caledonia Springs
Plantagenet	*Chard	David Brown, Salesman	Chard.
	*Fournier	J. R. Wight, Sec	Fournier.
	B. B. 3	Julien Brixbois, Sec	Alfred.
	Pendleton	Henry Moffatt, Prop	Pendleton.
	*Prescott Nos. 1 and 2	N. Parent, Prop	St. Isidore.
	*Riceville	A. McLean, Sec	Riceville.
	*Russell No. 8	Wm. Munro, Prop	Maxville.
	Section No. 2	D. Robinson, Treas	Plantagenet.
	Star	John McCrank, Sec	Curran.
	Treadwell	A. N. Chessar, Sec	Plantagenet.
	Wendover C	Alphonse Fortier, Sec	Wendover.
RUSSELL:			
Clarence	The Brook	Joseph Menard, Sec	The Brook.
	Lalonde	Emery Lalonde, Prop	Wendover.
	Clarence Creek	G. Fortier, Prop	Clarence Creek.
	The Lake	Magloire Landry, Sec	Clarence Creek.
	*Lavigne	M. Lavigne, Sec	The Lake.
	*Ouillette	Simeon Ouillette, Prop	The Lake.
	Stonebrook	G. E. Tucker, Sec	Clarence.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
RUSSELL.—*Continued.*			
Cumberland	*Russell (4 factories)	W. A. Munroe, Prop	Navan.
	Sarsfield	Dr. A. DesRosiers, Prop	Clarence Creek.
	*	J. M. Philp	Sarsfield.
	*	—— Normandeau	Orleans.
Russell	Craig & Son No. 1	W. Craig, Prop	Russell.
	Eager's Nos. 8 and 29	Wm. Eager, Prop	Morrisburg.
	Riverside	Petrie & McKeown, Props	Russell.
	South Branch	Mathew Turnbull, Sec	Russell.
	Spring Hill No. 1	Walter Henderson, Sec	Dickenson.
	Spring Hill	Bruyère & Gagnon, Props	Embrun.
CARLETON:			
Fitzroy	Elm Dale, Maple Leaf	M. K. Everttş, Prop	Easton's Corners.
	Riverview	John Stevenson, Prop	Kinburn.
	Union Pride	J. Tierney, Sec	Arnprior.
Goulburn	Golden	Robt. Cavanagh, Prop	Carleton Place.
	Ottawa Valley	Adam Abbott, Sec	Hazledean.
	Victoria	J. D. McCallum, Sec	Stittsville.
Gower N	Farmer's Joy	James A. Wallace, Sec	Carsonby.
	North Gower	John Wright, Sec	North Gower.
	Olive Dale	Isaiah Stevenson, Prop	Kars.
Marlborough	Eager's No. 21	Wm. Eager, Prop	Morrisburg.
Nepean	Eager's No. 17		
Osgoode	Craig & Son No. 2	W. Craig, Prop	Russell.
	Eager's Nos. 9, 16 and 23	Wm. Eager, Prop	Morrisburg.
	Gordon Model	H. D. Macdiarmid, Sec	Dalmeny.
	Manotick	Thomas Geddes, Sec	Manotick.
	Metcalfe	W. J. Campbell, Sec	Metcalfe.
	North Osgoode	H. D. Stewart, Prop	North Osgoode.
	Osgoode	H. D. York, Prop	Metcalfe.
	Osgoode Nos. 1 and 2	Robert Pink, Prop	Metcalfe.
	Reid's Mills	Wm. Reid, Prop	Reid's Mills.
	White Globe Nos. 2 and 3	Alpin Campbell, Prop	Ormond.
	Wide Awake	W. J. Moses, Prop	West Osgoode.
RENFREW:			
Admaston	Admaston	C. L. McCrady, Prop	Balsam Hill.
Bromley	†Douglas, †Osceola	J. H. Mundels, Prop	Lanark.
Horton	Maple Home	Robert McLaren, Sec	Renfrew.
McNab	New Glasgow	John A. Stewart, Sec	Harvey.
	Waba	Robert Stewart, Prop	Waba.
Pembroke	Greenwood	S. S. Lucky, Prop	Pembroke.
Ross	Forester's Falls	Wm. Grant, Prop	Forester's Falls.
Wilberforce	*Equal Rights	Albert Warren, Sec	Eganville.
	*Rankin	Joseph Graham, Sec	Rankin.
LANARK:			
Bathurst	Clareview	Moore & Hope, Props	Perth.
	*Fallbrook	Walter Cameron, Sec	Fallbrook.
	Harper	Joseph Warren, Sec	Harper.
	Scotch Line	James Fraser, Sec	Scotch Line.
	Taybanks	Elijah Hughes, Prop	Elliott.
Beckwith	*Beckwith	D. J. McDougal, Sec	Ashton.
	*Prospect	R. Wilson, Sec	Prospect.
	Tennyson	Neil Stewart, Sec	Carleton Place.
	*Valley Queen	Wm. McDonald, Sec	Franktown.
Dalhousie	Brookside, Watson's Corners	W. A. Moore, Sec	Perth.
	Poland	G. W. White, Sec	Poland.
Drummond	Balderson	J. C. McGregor, Sec	Balderson.
	Dexter	Donald McPhail, Prop	McPhail.
	Drummond Centre	Daniel Walsh, Prop	Drummond.
	Mississippi, Riverside	C. A. Matheson, Sec	Perth.
Elmsley N	Lone Star	M. K. Everttş, Prop	Easton's Corners.
Lanark	*Boyd	Alfred Hammond, Sec	Innisville.
	*Clyde	James Herron, Sec	Herron's Mills.
	*Fairplay	Thomas Jackson, Sec	Innisville.
	Hopetown	John Stewart, Sec	Hopetown.
	Middleville	A. R. McIntyre, Sec	Middleville.
Montague	Cedar Grove	E. R. Condie, Prop	Smith's Falls.
	Montague	George Leach, Prop	Smith's Falls.
	Roseville	Hugh Clark, Sec	Smith's Falls.
Pakenham	Pakenham	B. W. Dunnet, Sec	Pakenham.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
LANARK.—*Continued.*			
Ramsay	Appleton	Robt. Cavanagh, Prop	Carleton Place.
	Clayton	J. F. Drummond, Sec	Clayton.
	Mississippi Pride	M. K. Everetts, Prop	Easton's Corners.
	Rosebank	A. Lindsay, Sec	Blakeney.
	Rosedale	M. K. Everetts, Prop	Easton's Corners.
Sherbrooke S	*Lakeview	John McGuire, Sec	Westport.
	Maberly	W. A. Moore, Sec	Perth.
VICTORIA:			
Eldon	Lorneville	Lapp & McAlpine, Props	Lorneville.
Fenelon	Cambray	H. J. Lytle, Sec	Cambray.
	Fenelon Falls	F. Sandford, Sec	Fenelon Falls.
Mariposa	Little Britain	O. J. B. Yearsly, Prop	Little Britain.
	Manilla	Henry Glendinning, Sec	Manilla.
	Mariposa	David Rogers, Sec	Linden Valley.
	†Valentia	Robert Stillman	Valentia.
Verulam	Bobcaygeon	George W. Taylor, Sec	Bobcaygeon.
	Dunsford	Edmond Thurston, Prop	Dunsford.
	North Verulam	Emerson Tiers	Bobcaygeon.
	Star	Morgan Johns, Sec	Bobcaygeon.
PETERBOROUGH:			
Asphodel	*Daisy	Wm. Webster, Sec	Norwood.
	Norwood	Hugh Spence, Prop	Norwood.
	*Ormonde	John Coughlin, Sec	Hastings.
	Westwood	James Ryan, Prop	Westwood.
Belmont	Round Lake	D. T. Young, Prop	Rush Point.
	Star	J. E. Peoples, Pres	Preneveau.
	Trentbridge	S. Watson, Prop	Trentbridge.
Chandos	Apsley	Wm. Hales, Sec	Apsley.
	Chandos	J. W. Ratcliffe, Prop	Lasswade.
Douro	Maple Leaf	Maurice Condon, Sec	Douro.
	Pine Grove	R. H. Little, Prop	Lakefield.
Dummer	North Dummer	Frank Darling, Sec	Hall's Glen.
	Oakdale	S. S. Spence, Prop	South Dummer.
	Stony Lake	John A. Robb, Sec	Stony Lake.
	Warminster	S. R. Payne, Sec	Warsaw.
	Warsaw	Alex. Smith, Prop	Warsaw.
Ennismore	*Myrtle	J. F. Sullivan, Sec	Ennismore.
Harvey	Cedardale	Wm. Weir, Sec	Lakehurst.
Otonabee	Keene	D. P. McFarlane, Sec	Keene.
	Lang	Robert Weir, Prop	Lang.
	Otonabee Union	George Stewart, Prop	Peterborough.
	*Peterborough	Wm. Girvin, Sec	Peterborough.
	Shearer	John Miller, Sec	Lang.
Smith	Central Smith	Andrew Young, Sec	Peterborough.
	Cherry Grove	J. G. Armstrong, Prop	Peterborough.
	Lakefield	W. W. Grant, Sec	Lakefield.
	Lakeview	P. Robinson, Prop	Bridgenorth.
	*Missing Link	James Middleton	Peterborough.
	North Smith	M. E. Sanderson, Sec	Selwyn.
	*Trewern	G. W. Fitzgerald, Sec	Lakefield.
HALIBURTON:			
Cardiff	Deer Lake	Alfred W. Willis, Sec	Deer Lake.
Dysart	Dysart	Edward Holmes, Prop	Haliburton.
Minden	Minden	M. Brown, Treas	Minden.
Stanhope	Stanhope	Thos. Godwin, Sec	Boskung.
HASTINGS:			
Carlow	Carlow	Andrew White, Sec	Boulter.
Dungannon	Bancroft	Fred. Mullett, Pres	Bancroft.
	L'Amable	J. R. Tait, Sec	L'Amable.
	Walkerville	D. Kavanagh, Pres	Umfraville.
Elzevir	*Elzevir	Wm. Wiggins, Pres	Queensborough.
Faraday	Page Road	R. S. Tivy, Pres	Coe Hill.
Herschel	Beechmont	Manley Valleau, Pres	Bancroft.
	Bird's Lake	Joseph Stubbs, Sec	Bird's Creek.
	*Maynooth	John Parsons, Sec	Maynooth.
Hungerford	*Cedar	Andrew Kirk, Pres	Chapman.
	Clair River	Peter Labarge, Pres	Bogart.
	*Kervine	Patrick Murphy, Pres	Stoco.
	*Goose Creek	John McGrath, Sec	Marltank.

CHEESE FACTORIES IN ONTARIO.—*Continued.*

County and Township.	Name of Factory.	Name of Secretary or other Officer.	Post Office Address.
HASTINGS.—*Continued.*			
Hungerford	Marlbank	E. J. Reid, Sec	Marlbank.
	Moneymore	John Thompson, Sec	Moneymore.
	Roblin	James Clare, Pres	Chapman.
	*Thomasburg	M. Robinson, Pres	Thomasburg.
	*Tweed	Thomas Graham, Pres	Tweed.
	*Victoria	Robert Sayers, Sec	Tweed.
Huntingdon	Beulah	John H. Fleming, Sec	Ivanhoe.
	Daisy	John O'Reilly, Pres	Madoc.
	Glen	Samuel Ray, Pres	Fuller.
	Moira	W. H. Morton, Pres	Moira.
	West Huntingdon	James Haggerty, Pres	West Huntingdon
	*White Lake	Hector Wood, Pres	Ivanhoe.
Limerick	Ormsby	S. F Weaver, Sec	Ormsby.
Madoc	Allen Settlement	W. J. Allen, Pres	Cooper.
	Alexandria	John Caskey, Pres	Madoc.
	Brook Valley	Thos. E. Burnside, Pres	Hazzard's Corn'rs
	Cold Spring	A. M. Ketcheson, Pres	Madoc.
	Golden	James English, Pres	Madoc.
	*Madoc	Arch. Thompson, Pres	Queensborough.
	*Spring Creek	Wm. Thompson, Pres	Remington.
	Spring Hill	Donald McKenzie, Pres	Madoc.
Marmora	*Cook's	Porter Preston	Blairton.
	Deloro	Daniel Neil, Pres	Malone.
	Marmora, Riverside	Wm. Hilton, Pres	Marmora.
Mayo	Mayo and Carlow	W. J. Douglas, Prop	Fort Stewart.
Monteagle	Greenview	Edward Leveck, Sec	Greenview.
	Hybla	A. W. Bartlett, Pres	Monteagle Valley
Rawdon	Big Springs	James McComb, Prop	Big Springs.
	*Bell	J. T. Bateman	Springbrook.
	Central	G. A. Johnson, Pres	Anson.
	*Enterprise	Richard Clements, Pres	Sine.
	Evergreen	Robert Lanigan, Pres	Stirling.
	*Harold	John Tanner, Pres	Harold.
	*Kingston	J. T. Belshaw, Pres	Stirling.
	Maple Leaf	Wm. Meiklejohn, Pres	Big Springs.
	*Plum Grove	Fred. Fanning, Sec	Wellman's Cor's.
	Springbrook	Thos. J. Thompson, Sec	Springbrook.
	Spry	W. J. Spry, Prop	Big Springs.
	*Stirling	Hiram Conley, Pres	Stirling.
Sidney	*Bayside	R. J. Graham, Prop	Belleville.
	*Eclipse	James Bird, Pres	Chatterton.
	Frankford	Joshua Anderson, Pres	Frankford.
	Grove	B. Mallory, Sec	Frankford.
	*Johnston	E. Harry, Sec	Glen Miller.
	Shamrock	Oakley Vandervoort, Pres	Stirling.
	Sidney	J. R. Brower, Pres	Belleville.
	*Sidney Town Hall	S. T. Wilmot, Pres	Wallbridge.
	Springfield	Thomas Steele, Pres	Trenton.
Thurlow	Ashley	W. H. Falconer, Prop	Foxboro'.
	Bronk	James Boldrick, Pres	Corbyville.
	*East Hastings	John Clark, Sec	Plainfield.
	Halloway	Adam Rushnell, Pres	Halloway.
	Roslin	Nelson Sills, Pres	Roslin.
	Thurlow	J. M. Hurley, Pres	Belleville.
	Union	F. Brenton, Pres	Corbyville.
	Zion	Wm. Sills, Pres	Foxboro'.
Tudor	*Millbridge	Chas. Donaldson, Sec	Millbridge.
Tyendinaga	Albert, Read (2)	Michael Corrigan, Pres	Albert.
	Deseronto	R. Rayburn, Sec	Deseronto.
	*Gould's	Peter Gould, Sec	Napanee.
	Melrose	Wm. McLaren, Pres	Melrose.
	Mountain	R. L. Lazier, Pres	Shannonville.
	Shannonville	J. K. McCargar, Prop	Belleville.
Wollaston	Coe Hill	R. S. Tivy, Pres	Coe Hill.
PARRY SOUND:			
Humphrey	Ashdown	A. T. Sirett, Sec	Ashdown.
Machar	*Clear Water	Thomas Bottomley, Sec	South River.

CREAMERIES OPERATED IN ONTARIO IN SUMMER OF 1893 AND WINTER OF 1893-4.

County and Township.	Name of Creamery.	Name of Secretary or other Officer.	Post Office Address.
ESSEX:			
Rochester	*Woodslee	Wm. Allison	Woodslee.
LAMBTON:			
Plympton	*Wanstead	Arch. Wark, Manager	Wanstead.
HURON:			
Goderich	*Goderich	John Hannah, Prop	Seaforth.
Hullett	Londesborough	George Watt, Pres	Harlock.
McKillop	*Seaforth	John Hannah, Prop	Seaforth.
Stephen	*Exeter	W. E. Huston	Exeter.
Tuckersmith	Brucefield	H. McCartney, Prop	Brucefield.
BRUCE:			
Brant	*Walkerton	J. T. Brill, Prop	Guelph.
Carrick	Mildmay	James Johnston, Sec	Mildmay.
Culross	*Formosa	Peter Kunz, Sec	Formosa.
	Teeswater	S. P. Brill, Sec	Teeswater.
Elderslie	*Chesley	Halliday & Co., Props	Chesley.
	Paisley	Alex E. Wark	Paisley.
Kinloss	Whitechurch	J. J. W. Simpson, Sec	Whitechurch.
GREY:			
Bentinck	*Durham	A. M. Dargavel, Prop	Durham.
	Lamlash	W. J. Earls, Sec	Lamlash.
Derby	Owen Sound	James Smith, Sec	Owen Sound.
	Pleasant View	James Struthers, Prop	Owen Sound.
Egremont	*Dromore	John Philp, Sec	Dromore.
	Egremont	David Allan, Sec	Holstein.
Normanby	*Ayton	Isaac Wenger, Prop	Ayton
	Saugeen Valley	Charles Heise, Sec	Neustadt.
St. Vincent	Meaford	H. J. Rorke	Meaford.
MIDDLESEX:			
Dorchester	*Gladstone*	B. Swales, Sec	Gladstone.
London	*London* (Geary's)	Dominion Dairy Department.	Ottawa.
	*Medway	James Carmichael, Prop	Arva.
McGillivray	Springbank	J. S. Gilfillan	Lucan.
Mosa	*Newbury	W. Bain, Sec	Newbury.
OXFORD:			
Dereham	**Culloden* (Brownsville Co.)	W. A. Elliott, Sec	Brownsville.
	Mount Elgin	Dominion Dairy Department.	Ottawa.
Norwich, N	Norwich Junction	John McKee, Sec	Norwich.
Oxford, E	*Woodstock*	Dominion Dairy Department.	Ottawa.
Oxford, W	**West Oxford*	Hector Morrison	Ingersoll.
BRANT:			
Brantford	**North Brant*	John German, Sec	St. George.
PERTH:			
Blanshard	*Kirkton	John Hannah, Prop	Seaforth.
Downie	*Avonbank*	Wm. Tier, Sec	Motherwell.
WELLINGTON:			
Guelph	Springbank	Alex. McIntosh, Sec	Mosborough.
Nichol	Kinnettle's	George Wright, Sec	Elora.
WATERLOO:			
Wellesley	*Crosshill	John T. Wilford, Sec	Crosshill.
Wilmot	†Nith Valley	Chas. H. Tye, Sec	Haysville.
Woolwich	*St. Jacob's	Brubacher & Snyder, Props	St. Jacob's.

Winter creameries are printed in italics. *No return received. †Combination butter and cheese.

CREAMERIES OPERATED IN ONTARIO, ETC.—*Continued.*

County and Township.	Name of Creamery.	Name of Secretary or other Officer.	Post Office Address.
HALTON:			
Trafalgar	Palermo (1894-5)	J. W. Palmer, Sec	Palermo.
PEEL:			
Albion	*Silver Springs	L. O. Buist, Sec	Bolton.
YORK:			
Markham	*Locust Hill*	D. B. Nighswander, Sec	Locust Hill.
Vaughan	*Maple	Charles Keffer	Maple.
	*Woodbridge	Mr. Hallett	Woodbridge.
Whitchurch	*Stouffville*	J. J. Brown, Sec	Stouffville.
ONTARIO:			
Pickering	Pickering (1894)	F. L. Green	Greenwood.
Reach	Marsh Hill	Lewis Tomlinson, Sec	Marsh Hill.
PRINCE EDWARD:			
Ameliasburg	†Sprague	John Sprague, Prop	Ameliasburg.
LENNOX AND ADDINGTON:			
Camden	‡Newburgh	G. A. Aylesworth, Sec	Newburgh.
Ernestown	‡Violet	L. L. Gallagher, Sec	Wilton.
Fredericksburg, N.	*Napanee	W. N. Doller, Sec	Napanee.
LEEDS:			
Crosby, S	*Elgin Model*	J. R. Dargavel, Sec	Elgin.
Elizabethtown	*Barlow*	R. Barlow, Sec	Addison.
	Elizabethtown	T. W. Horton, Sec	New Dublin.
	*Palace	Cyrenus Stowell, Sec	Addison.
Yonge and Escott	Johnson's	Richard E. Cornell, Sec	Elbe Mills.
GRENVILLE:			
Edwardsburg	*Spencerville* Ventnor	Millar & Ferguson, Props	Spencerville.
DUNDAS:			
Matilda	W. D. Rutherford	Wm. Merkley, Sec	Irena.
	*Binion and Rutherford	Clinton Binion, Sec	Iroquois.
	*Banford and Johnston	Wm. Banford, Sec	Hainsville.
Williamsburg	*Dunbar	Wm. Binion, Sec	Iroquois.
Winchester	*Chesterville*	Dominion Dairy Department	Ottawa.
STORMONT:			
Osnabruck	*Mayflower	James H. Quinn	Osnabruck Centre
	*Stormont	Croil & McCullough	Aultsville.
GLENGARRY:			
Charlottenburg	Gore	Wm. Abrams	Summerstown Sta.
	*Lily White	Wm. Irvine	Martintown.
Lancaster	‡*Home*	D. M. Macpherson, Prop	Lancaster.
	Picnic Grove	Wm. Meldrum, Sec	Lancaster.
RUSSELL:			
Clarence	*The Brook*	Mr. Bellefeuille, Prop	The Brook.
Russell	*St. Onge	J. F. Boult, Sec	Embrun.
PETERBOROUGH:			
Smith	*North Smith*	M. E. Sanderson, Sec	Selwyn.
HASTINGS:			
Rawdon	*Wellman's Corners*	Dominion Dairy Department	Ottawa.
Tyendinaga	*Deseronto*	R. Rayburn, Sec	Deseronto.

Winter creameries are printed in italics. *No return received.

†Combination butter and cheese. ‡Returned for part of season.

STATISTICS OF

LIVESTOCK AND DAIRY PRODUCTS.

HORSES AND HOGS.

TABLE I. Showing by County Municipalities and groups of Counties the number of Horses and Hogs in Ontario in the years 1892 and 1893.

Counties.	Horses.					Hogs.			
	Working horses.	Breeding mares.	Unbroken horses.	Totals.		Over 1 year.	Under 1 year.	Totals.	
				1893.	1892.			1893.	1892.
Essex	9,712	2,306	5,857	17,875	18,529	11,602	37,797	49,399	51,021
Kent	12,648	3,393	7,736	23,777	23,376	9,317	36,722	46,039	45,740
Elgin	9,115	2,349	5,945	17,409	17,359	7,111	27,691	34,802	32,501
Norfolk	8,131	2,109	4,870	15,110	15,313	5,330	22,524	27,854	28,666
Haldimand	6,438	1,868	3,760	12,066	12,403	3,026	12,495	15,521	15,787
Welland	6,140	1,104	2,610	9,854	10,015	1,726	7,663	9,389	8,638
Totals	52,184	13,129	30,778	96,091	96,995	38,112	144,892	183,004	182,353
Lambton	10,041	2,740	5,756	18,537	18,429	4,738	17,809	22,547	21,770
Huron	16,083	5,258	11,184	32,525	33,366	7,216	28,390	35,606	35,762
Bruce	11,912	3,640	7,242	22,794	22,642	8,072	21,512	29,584	30,346
Totals	38,036	11,638	24,182	73,856	74,437	20,026	67,711	87,737	87,878
Grey	16,610	4,897	8,991	30,498	30,562	9,422	32,013	41,435	42,380
Simcoe	15,661	4,458	9,448	29,567	29,020	11,249	42,173	53,422	53,932
Totals	32,271	9,355	18,439	60,065	59,582	20,671	74,186	94,857	96,312
Middlesex	16,374	4,725	11,243	32,342	32,368	7,217	35,220	42,437	41,931
Oxford	11,080	3,170	6,261	20,511	20,398	5,635	32,743	38,378	35,515
Brant	5,980	1,404	3,225	10,609	10,507	2,922	15,997	18,919	16,977
Perth	11,572	3,723	7,060	22,355	22,141	8,173	23,880	32,053	30,896
Wellington	13,427	3,806	7,817	25,050	24,944	6,238	31,064	37,302	38,560
Waterloo	8,158	1,956	3,657	13,771	14,067	2,592	13,402	15,994	16,446
Dufferin	5,804	1,779	3,376	10,959	10,930	3,664	15,069	18,733	20,075
Totals	72,395	20,563	42,639	135,597	135,355	36,441	167,375	203,816	200,400
Lincoln	6,193	1,143	2,777	10,113	10,332	1,876	8,662	10,538	10,835
Wentworth	8,226	1,565	3,131	12,922	12,666	2,943	13,235	16,178	15,963
Halton	5,580	1,108	2,277	8,965	8,839	1,796	10,974	12,770	11,183
Peel	7,858	2,124	3,597	13,579	13,804	3,458	17,583	21,041	20,456
York	14,286	4,474	8,212	26,972	27,157	6,064	31,793	37,857	38,688
Ontario	10,640	3,886	7,432	21,958	21,968	6,169	25,464	31,633	31,753
Durham	8,979	2,691	4,883	16,553	16,183	4,277	16,943	21,220	20,341
Northumberland	10,684	2,138	5,493	18,315	18,619	5,394	18,615	24,009	24,649
Prince Edward	6,932	1,645	4,089	12,666	12,855	2,217	8,263	10,480	9,531
Totals	79,378	20,774	41,891	142,043	142,423	34,194	151,532	185,726	183,399
Lennox & Addington	6,314	1,312	3,625	11,251	11,064	2,635	6,514	9,149	9,136
Frontenac	5,941	1,292	2,652	9,885	9,634	3,211	9,287	12,498	12,628
Leeds and Grenville	11,882	2,260	5,164	19,306	19,509	9,409	23,162	32,571	29,173
Dundas	5 333	735	2,470	8,538	9,011	2,857	10,155	13,012	11,365
Stormont	4,069	1,122	2,642	7,833	7,891	2,264	5,758	8,022	7,645
Glengarry	4,943	1,636	3,090	9,669	9,994	3,091	6,817	9,908	9,308
Prescott	4,315	1,539	2,577	8,431	8,305	4,312	7,762	12,074	11,263
Russell	2,585	982	1,630	5,197	5,256	2,252	5,966	8,218	7,909
Carleton	8,736	2,346	4,311	15,393	16,090	5,130	17,997	23,127	21,861
Renfrew	7,126	1,848	3,832	12,806	13,350	7,773	13,335	21,108	21,065
Lanark	7,137	1,522	3,383	12,042	12,307	3,881	15,317	19,198	18,362
Totals	68,381	16,594	35,376	120,351	122,411	46,815	122,070	168,885	159,715
Victoria	7,852	2,841	5,343	16,036	16,902	4,689	17,235	21,924	19,950
Peterborough	6,361	1,759	3,945	12,065	11,776	5,029	12,356	17,385	17,620
Haliburton	767	356	545	1,668	1,554	774	2,169	2,943	2,982
Hastings	10,817	1,939	5,319	18,075	18,333	8,950	20,657	29,607	30,185
Totals	25,797	6,895	15,152	47,844	48,565	19,442	52,417	71,859	70,737
Muskoka	1,698	575	892	3,165	3,133	1,183	3,002	4,185	4,492
Parry Sound	1,324	331	680	2,335	2,204	1,100	3,188	4,288	4,355
Nipissing	660	169	184	1,013	820	554	874	1,428	1,164
Algoma	1,491	530	806	2,827	2,889	1,858	4,379	6,237	6,169
Totals	5,173	1,605	2,562	9,340	9,046	4,695	11,443	16,138	16,180
The Province	373,615	100,553	211,019	685,187	688,814	220,396	791,626	1,012,022	996,974

CATTLE.

TABLE II. Showing by County Municipalities and groups of Counties the number of Cattle in Ontario in the years 1892 and 1893.

Counties.	Working oxen.	Milch cows.		Store cattle over 2 years.		Young and other cattle.	Totals.	
		1893.	1892.	1893.	1892.		1893.	1892.
Essex	175	13,549	13,305	6,759	6,306	14,690	35,173	36,155
Kent	26	15,595	15,857	12,430	12,914	22,230	50,281	52,354
Elgin	99	17,601	17,312	10,835	11,279	21,785	50,320	51,187
Norfolk	275	14,379	13,863	4,437	4,780	13,626	32,717	32,734
Haldimand	23	12,274	11,921	4,009	4,393	13,154	29,460	28,892
Welland	99	8,516	8,307	2,764	2,543	8,990	20,369	20,190
Totals	697	81,914	80,565	41,234	42,215	94,475	218,320	221,512
Lambton	48	17,536	17,482	16,308	16,752	28,971	62,863	63,013
Huron	81	29,273	28,931	29,656	30,031	50,389	109,399	109,200
Bruce	224	25,000	24,854	25,521	23,780	42,359	93,104	90,844
Totals	353	71,809	71,267	71,485	70,563	121,719	265,366	263,057
Grey	443	34,398	34,389	23,671	23,655	55,560	114,072	112,808
Simcoe	213	26,133	24,590	16,907	19,131	36,740	79,993	78,846
Totals	656	60,531	58,979	40,578	42,786	92,300	194,065	191,654
Middlesex	22	33,867	33,940	28,166	27,739	43,562	105,617	105,930
Oxford	115	33,454	33,585	14,776	12,815	27,025	75,370	74,617
Brant	54	11,241	10,652	2,252	2,452	12,225	25,772	24,681
Perth	18	27,414	26,816	15,971	14,635	36,037	79,440	77,807
Wellington	30	24,274	23,814	17,003	14,701	35,969	77,276	74,105
Waterloo	24	13,132	13,094	5,258	4,630	16,033	34,447	33,338
Dufferin	49	10,258	10,131	8,885	8,421	16,004	35,196	34,269
Totals	312	153,640	152,032	92,311	85,393	186,855	433,118	424,747
Lincoln	29	7,635	7,495	2,537	2,222	7,160	17,361	17,243
Wentworth	59	13,226	13,874	3,145	2,514	11,929	28,359	27,954
Halton	67	10,020	9,796	4,373	3,415	11,286	25,746	24,366
Peel	24	12,654	12,665	3,922	4,263	12,357	28,957	28,157
York	22	19,566	18,677	6,426	6,468	15,777	41,791	41,197
Ontario	24	17,461	17,517	9,519	9,083	25,561	52,565	52,007
Durham	84	12,618	12,241	6,381	6,297	16,094	35,177	34,917
Northumberland	113	21,552	21,759	7,165	6,895	19,300	48,130	48,557
Prince Edward	23	11,801	12,037	1,814	1,676	8,343	21,981	22,064
Totals	445	126,533	126,061	45,282	42,833	127,807	300,067	296,462
Lennox and Addington	279	15,767	15,477	6,883	6,087	15,284	38,213	37,818
Frontenac	62	17,809	16,893	5,689	5,285	14,255	37,815	36,933
Leeds and Grenville	10	49,890	47,772	7,633	6,471	24,641	82,174	79,430
Dundas	27	17,591	16,284	2,600	2,003	9,054	29,272	27,214
Stormont	6	15,777	15,645	1,802	1,958	7,305	24,890	25,105
Glengarry	.....	18,346	18,671	2,103	2,098	11,606	32,055	31,616
Prescott	12	15,264	15,278	2,663	2,116	10,155	28,094	27,418
Russell	28	8,054	7,491	1,784	2,193	7,083	16,949	17,083
Carleton	.....	24,916	23,365	7,380	7,322	21,739	54,035	52,178
Renfrew	.....	18,610	18,219	8,872	8,932	22,039	49,521	48,899
Lanark	129	23,986	23,358	8,527	8,543	20,773	53,415	53,478
Totals	553	226,010	218,453	55,936	53,008	163,934	446,433	437,172
Victoria	66	14,001	12,976	10,921	10,823	22,530	47,518	45,942
Peterborough	173	16,322	15,535	5,980	5,296	15,238	37,713	35,524
Haliburton	214	2,634	2,538	1,243	1,265	4,276	8,367	7,851
Hastings	490	37,448	36,929	6,417	6,406	22,212	66,567	65,779
Totals	943	70,405	67,978	24,561	23,790	64,256	160,165	155,096
Muskoka	435	4,325	4,173	2,153	2,048	6,339	13,252	12,910
Parry Sound	447	3,672	3,549	2,121	2,061	5,776	12,016	11,636
Nipissing	28	844	806	420	319	929	2,221	2,023
Algoma	385	3,915	3,973	1,933	1,689	6,626	12,859	12,871
Totals	1,295	12,756	12,501	6,627	6,117	19,670	40,348	39,440
The Province	5,254	803,598	787,836	378,014	366,705	871,016	2,057,882	2,029,140

SHEEP AND POULTRY.

TABLE III. Showing by County Municipalities and groups of Counties the number of Sheep and Poultry in Ontario in the years 1892 and 1893.

Counties.	Sheep.				Poultry.				
	Over 1 year.	Under 1 year.	Totals.		Turkeys	Geese.	Other fowls.	Totals.	
			1893.	1892.				1892.	1892.
Essex	15,463	15,057	30,520	31,948	18,422	11,524	177,199	207,145	197,000
Kent	20,992	17,930	38,922	38,580	18,021	9,362	161,049	188,432	184,455
Elgin	27,686	26,432	54,118	51,862	16,122	6,287	150,634	173,043	160,891
Norfolk	19,388	16,530	35,918	35,231	10,186	5,746	115,862	131,794	136,702
Haldimand	15,915	13,708	29,623	28,702	13,951	5,006	98,669	117,626	117,580
Welland	12,967	11,940	24,907	24,390	9,184	3,647	90,582	103,413	97,367
Totals	112,411	101,597	214,008	210,713	85,886	41,572	793,995	921,453	893,995
Lambton	30,998	29,972	60,970	58,244	15,832	8,619	166,157	190,608	195,706
Huron	57,766	56,304	114,070	111,303	26,272	23,635	295,922	345,829	354,328
Bruce	58,960	55,683	114,643	109,545	16,618	17,317	194,196	228,131	226,656
Totals	147,724	141,959	289,683	279,092	58,722	49,571	656,275	764,568	776,690
Grey	77,870	68,476	146,346	143,059	24,737	25,266	266,024	316,027	328,072
Simcoe	50,421	42,948	93,369	89,126	27,396	25,032	253,709	306,137	295,916
Totals	128,291	111,424	239,715	232,185	52,133	50,298	519,733	622,164	623,988
Middlesex	42,567	37,029	79,596	74,611	35,038	12,981	309,272	357,291	353,713
Oxford	14,995	14,580	29,575	30,075	15,587	6,987	171,120	193,694	197,190
Brant	10,617	10,382	20,999	19,598	6,194	3,925	88,580	98,699	95,846
Perth	29,894	28,927	58,821	55,276	15,094	16,032	221,125	252,251	249,178
Wellington	47,110	43,876	90,986	88,259	18,017	17,219	204,229	239,465	239,291
Waterloo	21,068	18,336	39,404	37,911	8,656	6,629	144,829	160,114	159,206
Dufferin	19,182	15,365	34,547	34,498	8,298	10,370	104,236	122,904	123,576
Totals	185,433	168,495	353,928	340,228	106,884	74,143	1,243,391	1,424,418	1,418,000
Lincoln	11,709	10,835	22,544	21,310	7,209	3,727	82,898	93,834	89,674
Wentworth	15,062	13,426	28,488	25,873	10,182	3,906	103,501	117,589	115,246
Halton	11,433	10,049	21,482	18,896	8,090	6,810	87,885	102,785	108,136
Peel	15,205	11,693	26,898	26,810	20,654	16,144	117,832	154,630	142,958
York	26,252	20,725	46,977	46,251	27,315	14,633	208,880	250,828	242,430
Ontario	27,057	21,502	48,559	44,333	17,127	14,225	178,492	209,844	198,213
Durham	22,954	17,212	40,166	33,549	23,366	13,630	134,313	171,309	175,109
Northum'd	18,559	15,913	34,472	33,302	14,338	9,296	161,099	184,733	187,643
Prince Ed.	7,829	6,899	14,728	13,631	4,616	2,547	96,294	102,457	100,839
Totals	156,060	128,254	284,314	263,955	132,897	84,918	1,170,194	1,388,009	1,360,248
Lennox & Ad	13,357	10,974	24,331	24,665	5,771	5,220	87,991	98,982	104,584
Frontenac	16,044	14,484	30,528	27,576	11,335	6,534	93,245	111,114	108,178
Leeds & Gren	27,154	24,549	51,703	52,241	30,493	16,633	181,547	228,673	230,374
Dundas	6,772	6,003	12,775	11,304	12,627	7,932	98,857	119,416	122,352
Stormont	8,519	7,359	15,878	14,888	4,675	4,210	73,883	82,768	85,674
Glengarry	11,107	9,045	20,152	19,983	8,302	3,176	79,042	90,520	91,738
Prescott	10,286	8,873	19,159	17,618	6,898	5,096	76,536	88,530	85,984
Russell	8,120	6,561	14,681	14,629	9,727	4,838	46,647	61,212	61,209
Carleton	24,700	21,385	46,085	42,909	28,411	19,321	167,951	215,683	213,249
Renfrew	38,492	31,541	70,033	66,164	15,925	12,196	105,401	133,522	134,558
Lanark	35,586	29,377	64,963	65,789	19,979	13,336	132,636	165,951	171,198
Totals	200,137	170,151	370,288	357,766	154,143	98,492	1,143,736	1,396,371	1,409,098
Victoria	29,820	23,520	53,340	45,052	13,910	10,417	120,100	144,427	143,162
Peterboro'	18,158	14,449	32,607	29,461	13,203	10,430	116,789	140,427	138,985
Haliburton	4,393	3,405	7,798	7,074	970	1,407	15,041	17,418	17,153
Hastings	24,245	21,103	45,348	43,228	8,772	10,966	158,707	178,445	183,421
Totals	76,616	62,477	139,093	124,815	36,860	33,220	410,637	480,717	482,721
Muskoka	7,918	6,068	13,986	12,669	4,882	1,970	34,106	40,958	38,786
Parry Sound	6,676	5,023	11,699	10,823	2,078	1,362	25,803	29,243	27,197
Nipissing	620	407	1,027	1,080	827	438	7,372	8,637	9,263
Algoma	10,183	8,014	18,197	17,147	3,215	3,498	31,185	37,898	38,987
Totals	25,397	19,512	44,909	41,719	11,002	7,268	98,466	116,736	114,233
The Province	1,032,069	903,869	1,935,938	1,850,473	638,527	439,482	6,036,427	7,114,436	7,078,973

LIVE STOCK SOLD.

TABLE IV. Showing by County Municipalities and groups of Counties the number of Horses, Cattle, Sheep, Hogs and Poultry sold in the Province of Ontario in the years 1892 and 1893, ending June 30th of each year.

Counties.	Horses.		Cattle.		Sheep.		Hogs.		Poultry.	
	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.
Essex	1,362	1,113	8,187	7,910	10,310	9,475	36,154	40,712	81,275	79,352
Kent	1,218	1,308	13,982	13,812	14,205	13,685	42,989	45,031	58,125	63,501
Elgin	1,662	1,707	12,508	11,532	21,347	19,289	36,514	35,994	62,445	59,819
Norfolk	1,180	1,141	7,341	6,209	10,944	9,503	28,187	28,182	43,745	40,540
Haldimand	808	876	5,210	5,061	11,327	12,158	15,827	15,571	45,114	46,708
Welland	667	496	5,453	5,421	11,526	11,191	10,471	10,328	38,806	36,652
Totals	6,897	6,641	52,681	49,945	79,659	75,301	170,142	175,818	329,510	326,572
Lambton	1,242	1,285	18,638	17,724	18,251	15,875	18,600	17,792	48,515	46,895
Huron	3,820	4,434	31,126	31,804	35,872	35,375	41,991	44,126	75,798	74,633
Bruce	2,324	2,559	24,814	22,118	36,859	29,709	29,676	28,979	53,776	51,979
Totals	7,386	8,278	74,578	71,646	90,982	80,959	90,267	90,897	178,089	173,507
Grey	1,760	1,457	24,465	21,827	43,701	37,981	40,811	42,344	70,688	74,158
Simcoe	1,853	1,836	18,018	17,872	27,845	28,252	44,095	41,965	86,277	81,451
Totals	3,613	3,293	42,483	39,699	71,546	66,233	84,906	84,309	156,965	155,609
Middlesex	2,295	2,505	31,813	29,989	28,016	23,926	48,408	49,811	107,731	105,383
Oxford	1,247	1,482	18,299	15,214	11,075	10,703	47,044	50,507	47,716	44,788
Brant	535	570	5,993	6,416	7,898	8,470	20,933	19,775	36,327	33,011
Perth	1,432	1,546	19,525	18,529	19,968	18,897	32,640	34,881	45,564	48,475
Wellington	1,736	1,670	21,300	20,343	27,811	26,802	52,037	48,651	49,964	47,215
Waterloo	901	975	13,592	13,163	14,920	14,839	22,063	23,302	36,754	38,864
Dufferin	741	724	8,483	8,189	8,086	7,454	18,218	16,797	26,516	27,853
Totals	8,887	9,472	119,005	111,843	117,774	111,091	241,343	243,724	350,572	345,589
Lincoln	584	600	4,199	4,309	7,769	7,955	11,196	11,839	32,359	30,839
Wentworth	706	765	6,128	5,513	10,960	9,656	19,974	20,916	36,960	36,238
Halton	476	527	6,150	5,322	6,783	6,331	12,560	13,136	39,553	39,123
Peel	763	1,002	7,773	6,591	8,937	9,245	20,261	23,046	63,683	57,912
York	2,003	1,975	15,056	14,408	17,740	17,741	46,623	47,096	86,460	84,305
Ontario	2,292	1,843	14,279	13,701	15,362	14,660	36,773	35,501	68,865	61,300
Durham	1,066	916	8,136	7,167	11,368	8,066	19,852	19,813	50,389	50,293
Northum'd	1,004	1,259	9,648	8,546	9,839	9,285	22,292	20,637	45,418	39,479
Prince Ed	434	426	3,171	2,904	4,916	3,980	9,405	9,596	25,899	26,732
Totals	9,328	9,313	74,540	68,461	93,674	86,919	198,936	201,580	449,586	426,221
Lennox&Ad	507	517	6,014	4,532	7,766	6,707	9,128	9,436	31,165	34,250
Frontenac	385	482	6,387	6,640	9,181	8,833	8,780	9,988	45,761	46,058
Leeds&Gren	918	970	10,567	10,051	19,492	17,909	22,206	19,829	62,741	59,319
Dundas	1,024	921	3,103	3,012	5,727	5,375	8,870	7,629	27,912	23,655
Stormont	471	436	2,953	2,892	3,866	3,198	5,073	4,371	16,506	15,043
Glengarry	730	730	4,098	3,831	6,059	5,699	6,680	5,845	23,225	19,515
Prescott	605	506	2,375	2,566	4,783	4,883	5,773	4,906	28,674	21,713
Russell	344	373	2,815	2,473	4,130	3,650	4,729	4,152	16,614	21,262
Carleton	956	646	8,830	8,739	14,624	12,631	14,054	13,231	58,424	58,290
Renfrew	706	656	7,818	7,952	16,654	17,537	12,780	13,019	35,586	37,859
Lanark	1,059	820	8,805	8,309	19,083	19,364	13,607	13,849	40,328	44,043
Totals	7,705	7,057	63,765	60,997	111,365	105,786	111,680	106,255	386,956	381,007
Victoria	1,048	804	9,223	8,327	17,939	14,541	17,442	16,828	46,224	38,536
Peterboro'	514	424	7,503	6,946	8,849	8,467	15,809	14,766	32,709	28,728
Haliburton	135	118	1,314	1,136	2,311	2,294	2,004	1,843	4,876	3,404
Hastings	1,529	786	8,921	9,144	11,218	13,387	29,235	28,737	47,558	49,917
Totals	3,226	2,132	26,961	25,853	40,317	38,689	64,490	62,174	131,367	120,585
Muskoka	349	293	2,433	2,425	3,751	3,705	4,083	4,362	11,478	10,608
Parry Sound	193	241	2,309	2,399	3,009	2,932	3,949	4,180	6,909	7,014
Nipissing	52	39	434	462	297	319	649	585	2,593	2,808
Algoma	261	196	2,312	2,622	3,863	4,000	4,913	4,907	13,502	16,889
Totals	855	769	7,488	7,908	10,920	10,956	13,594	14,034	34,482	37,319
The Province	47,897	46,955	461,501	436,352	616,237	575,934	975,358	978,791	2,017,507	1,966,409

WOOL.

TABLE V. Showing by County Municipalities and groups of Counties the clip of Wool in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93; also the average number of pounds per fleece.

Counties.	1893.			1892.			Yearly average for the twelve years 1882-93.		
	No. of fleeces.	Pounds.	lb. per fleece.	No. of fleeces.	Pounds.	lb. per fleece.	No. of fleeces.	Pounds.	lb per fleece.
Essex	14,100	83,993	5.96	13,731	80,181	5.84	14,471	81,912	5.66
Kent	19,930	117,893	5.92	19,002	115,447	6.08	20,479	117,863	5.76
Elgin	27,463	165,542	6.03	26,182	162,340	6.20	23,679	137,174	5.79
Norfolk	18,869	104,094	5.52	17,899	100,833	5.63	16,945	90,649	5.35
Haldimand	15,710	98,185	6.25	15,153	96,382	6.36	17,341	103,693	5.98
Welland	12,467	61,926	4.97	12,238	61,794	5.05	13,755	69,365	5.04
Totals	108,539	631,633	5.82	104,205	616,977	5.92	106,670	600,656	5.63
Lambton	30,776	182,643	5.93	28,641	176,426	6.16	26,196	153,835	5.87
Huron	56,878	337,035	5.93	56,605	339,314	5.99	49,841	286,232	5.74
Bruce	56,809	334,489	5.89	54,470	328,221	6.03	49,617	286,508	5.77
Totals	144,463	854,167	5.91	139,716	843,961	6.04	125,654	726,575	5.78
Grey	77,749	447,544	5.76	75,888	452,034	5.96	71,029	397,311	5.59
Simcoe	50,587	300,202	5.93	45,778	273,800	5.98	45,465	254,933	5.61
Totals	128,336	747,746	5.83	121,666	725,834	5.97	116,494	652,244	5.60
Middlesex	41,062	264,634	6.44	38,309	244,766	6.39	38,299	231,300	6.04
Oxford	15,147	91,072	6.01	14,867	89,351	6.01	13,578	106,809	5.75
Brant	10,758	65,606	6.10	9,953	60,686	6.10	13,247	76,509	5.78
Perth	29,235	175,299	6.00	28,087	168,460	6.00	31,462	180,479	5.74
Wellington	45,885	279,300	6.09	44,694	273,660	6.12	47,027	271,330	5.77
Waterloo	20,198	116,072	5.75	18,498	104,789	5.66	21,796	119,041	5.46
Dufferin	20,010	120,036	6.00	19,922	122,267	6.14	18,262	104,336	5.71
Totals	182,295	1,112,019	6.10	174,330	1,063,979	6.10	188,671	1,089,804	5.78
Lincoln	12,321	64,131	5.21	11,973	62,239	5.20	10,629	55,001	5.17
Wentworth	14,953	90,039	6.02	13,091	79,294	6.06	14,878	85,303	5.73
Halton	11,788	79,392	6.73	10,079	69,840	6.93	11,499	72,433	6.30
Peel	16,389	114,253	6.97	15,972	107,265	6.72	15,386	101,436	6.59
York	26,313	168,415	6.40	25,826	166,225	6.44	26,916	162,974	6.05
Ontario	25,999	169,435	6.52	24,193	154,585	6.39	26,739	165,722	6.20
Durham	22,282	137,132	6.15	18,893	120,982	6.40	21,296	125,497	5.89
Northumberland	18,802	109,321	5.81	18,015	104,084	5.78	20,100	115,326	5.74
Prince Edward	7,175	41,583	5.80	7,035	38,087	5.41	8,917	47,491	5.33
Totals	156,022	973,701	6.24	145,077	902,601	6.22	156,360	931,183	5.96
Lennox & Addington	12,659	69,975	5.53	12,018	66,960	5.57	14,089	74,917	5 32
Frontenac	15,752	82,723	5.25	14,698	78,014	5.31	17,860	90,610	5 07
Leeds and Grenville	26,594	136,534	5.13	25,934	134,075	5.17	34,282	168,132	4.90
Dundas	6,629	36,242	5.47	5,552	30,653	5.52	9,800	49,480	5.05
Stormont	8,533	45,263	5.30	8,030	44,109	5.49	9,316	48,607	5 22
Glengarry	10,580	58,074	5.49	10,244	55,916	5.46	14,496	69,667	4.81
Prescott	10,172	55,107	5.42	9,743	53,168	5.46	10,578	53,007	5.01
Russell	8,134	45,774	5.63	8,157	45,987	5.64	7,914	39,716	5 02
Carleton	23,753	129,066	5.43	21,239	117,677	5.54	26,998	138,392	5.13
Renfrew	37,747	188,064	4.98	35,148	177,138	5.04	37,133	172,257	4.64
Lanark	35,708	181,324	5.08	35,991	182,468	5.07	33,685	163,922	4 87
Totals	196,261	1,028,146	5.24	186,754	986,165	5.28	216,151	1,068,707	4 94
Victoria	28,741	164,448	5.72	24,296	143,937	5.92	22,568	126,221	5.59
Peterborough	17,364	95,145	5.48	15,588	86,145	5.53	16,658	88,545	5.33
Haliburton	4,504	23,371	5.19	3,700	19,040	5.15	3,558	17,286	4.86
Hastings	23,767	124,618	5.24	22,991	124,887	5.43	24,542	122,014	4.97
Totals	74,376	407,582	5.48	66,575	374,009	5.62	67,326	354,066	5.26
Muskoka	7,992	40,078	5.01	7,202	37,011	5.14	6,256	33,166	5.30
Parry Sound	6,948	39,020	5.62	6,396	36,771	5.75	3,249	18,558	5.71
Nipissing	524	2,626	5.01	572	2,834	4.95	180	904	5.02
Algoma	9,741	60,173	6 18	8,667	53,564	6.18	4,730	28,542	6.03
Totals	25,205	141,897	5.63	22,837	130,180	5.70	14,415	81,170	5.63
The Province	1,015,497	5,896,891	5.81	961,160	5,643,706	5.87	991,741	5,504,405	5.55

FACTORY CHEESE.

TABLE VI. Showing by County Municipalities and groups of Counties the quantity and value of Cheese made at 675 factories in Ontario in 1893, the average dates of opening and closing, and the total number of factories reported in operation.

Counties.	Factories in operation.	Factories making returns.	Quantity of		Gross value of Cheese.	No. of patrons.	Milk required to make 1 lb. Cheese.	Value of cheese per 100 lb.	Average date of opening.	Average date of closing.
			Milk used.	Cheese made.						
	No.	No.	lb.	lb.	$		lb.	$ c.		
Essex	2	2	888,327	82,216	8,024	120	10.80	9 76	May 15	Oct. 22
Kent	5	4	1,086,618	99,263	9,683	132	10.95	9 76	" 24	Sep. 11
Elgin	23	18	20,640,107	1,895,088	186,142	1,208	10.89	9 82	Apr. 30	Nov. 7
Norfolk	20	16	16,589,323	1,490,272	143,892	1,391	10.73	9 66	May 3	" 11
Haldimand	9	8	7,797,892	719,318	69,346	730	10.84	9 64	" 8	Oct. 20
Welland	3	3	2,225,860	201,746	19,587	272	11.03	9 71	" 17	Nov. 11
Totals	62	51	49,228,127	4,487,903	436,674	3,853	10.97	9 73	" 5	Oct. 31
Lambton	13	11	8,071,226	732,629	69,186	933	11.02	9 44	" 18	" 7
Huron	14	12	12,338,717	1,135,388	111,906	1,200	10.87	9 86	" 17	" 19
Bruce	21	17	16,729,039	1,542,508	149,458	1,523	10.85	9 69	" 17	" 14
Totals	48	40	37,138,982	3,410,525	330,550	3,656	10.89	9 69	" 17	" 14
Grey	13	12	7,539,595	716,641	68,846	750	10.52	9 61	" 21	" 12
Simcoe	11	10	4,218,568	395,413	36,885	492	10.67	9 33	" 23	" 4
Totals	24	22	11,758,163	1,112,054	105,731	1,242	10.57	9 51	" 22	" 8
Middlesex	32	31	40,229,739	3,694,671	361,419	2,162	10.89	9 78	Apr. 28	Nov. 5
Oxford	43	36	72,835,589	6,725,750	661,366	2,725	10.83	9 83	" 13	" 26
Brant	7	3	2,988,856	275,873	26,625	226	10.83	9 65	" 27	" 5
Perth	23	21	34,929,734	3,243,996	325,230	1,921	10.77	10 03	May 4	" 3
Wellington	10	8	11,003,225	1,040,075	102,550	817	10.58	9 86	" 20	Oct. 18
Waterloo	4	3	3,276,906	303,178	30,786	228	10.81	10 15	" 8	Nov. 1
Dufferin	3	3	2,152,476	209,358	20,144	188	10.28	9 62	" 15	Oct. 23
Totals	122	105	167,416,525	15,492,901	1,528,120	8,267	10.81	9 86	Apr. 27	Nov. 10
Lincoln	3	3	2,796,380	255,013	24,073	322	10.97	9 44	May 17	Oct. 24
Wentworth	6	4	5,656,512	513,293	49,413	440	11.02	9 63	" 7	Nov. 3
Halton	1	1	649,686	61,339	5,873	50	10.59	9 57	" 26	Oct. 30
Peel	2	2	762,000	70,450	6,693	82	10.82	9 50	" 27	Sep. 18
York	6	6	2,316,510	215,734	20,586	264	10.74	9 54	" 26	Oct. 10
Ontario	6	5	2,346,125	217,656	21,516	287	10.78	9 89	" 5	" 13
Durham	12	11	7,812,747	704,751	68,204	681	11.09	9 68	" 9	" 31
Northumberland	35	28	25,580,313	2,393,427	227,819	1,385	10.69	9 52	Apr. 27	Nov. 5
Prince Edward	16	9	10,199,796	956,342	90,801	765	10.67	9 49	" 26	Oct. 24
Totals	87	69	58,120,069	5,388,005	514,978	4,276	10.32	9 59	May 5	" 28
Lennox & Addington	26	24	38,372,082	3,717,621	356,587	2,007	10.32	9 59	Apr. 20	Nov. 8
Frontenac	48	34	25,035,518	2,421,953	230,124	1,121	10.34	9 50	May 3	" 3
Leeds	72	44	48,429,796	4,651,042	449,988	1,711	10.41	9 67	Apr. 19	" 17
Grenville	32	25	31,310,876	2,941,922	286,485	1,268	10.64	9 74	" 19	" 10
Dundas	37	31	28,863,551	2,812,306	271,377	1,105	10.26	9 65	" 28	" 10
Stormont	35	20	17,556,193	1,712,264	163,412	764	10.25	9 54	" 30	" 5
Glengarry	39	22	13,377,040	1,312,873	124,398	615	10.19	9 48	May 1	" 2
Prescott	50	23	13,755,826	1,354,898	130,108	720	10.15	9 60	" 1	" 6
Russell	21	13	6,838,573	677,924	64,413	469	10.08	9 50	" 7	Oct. 30
Carleton	27	27	19,868,124	1,933,156	185,043	1,108	10.28	9 57	" 9	" 27
Renfrew	8	6	4,239,917	414,037	39,032	312	10.24	9 43	" 18	" 19
Lanark	34	26	28,644,199	2,762,153	265,718	1,556	10.37	9 62	" 8	" 29
Totals	429	295	276,291,695	26,712,149	2,566,685	12,756	10.34	9 61	Apr. 29	Nov. 5
Victoria	10	10	4,448,077	413,816	39,845	447	10.75	9 63	May 13	Oct. 24
Peterborough	30	24	21,285,757	1,978,112	192,182	1,190	10.76	9 72	" 3	" 30
Haliburton	4	4	708,957	68,884	6,520	68	10.29	9 47	" 25	Sept. 28
Hastings	79	54	59,563,711	5,761,240	552,153	2,505	10.34	9 58	Apr. 26	Nov. 3
Totals	123	92	86,006,502	8,222,052	790,700	4,210	10.46	9 62	" 30	Oct. 31
Parry Sound	2	1	170,361	15,588	1,559	20	10.93	10 00	June 5	" 14
The Province	897	675	686,130,424	64,841,177	6,274,997	38,280	10.58	9 68	May 2	Nov. 2
Estimated at 222 factories not reported	....	222	225,660,780	21,325,542	2,063,712	12,590	.....	.....		
Total for 897 factories	....	897	911,791,204	86,166,719	8,338,709	50,870	.....	.....		

NOTE.—The statistics by counties are for factories making returns only.

PART III.

VALUES, RENTS AND FARM WAGES.

VALUES OF FARM PROPERTY.

In the following table the values of farm lands, buildings, implements and live stock are given by county groups and for the province for 1892 and 1893, and also the totals for the province for the same years, and the average for the twelve years 1882-93:

Districts.		Farm land.	Buildings.	Implements.	Live stock.	Total farm property.
		$	$	$	$	$
Lake Erie	1893..	87,453,505	27,041,527	7,013,362	14,164,546	135,672,940
	1892..	87,704,562	26,222,339	6,944,080	14,658,104	135,529,085
Lake Huron	1893..	67,893,817	20,517,176	5,546,717	14,353,566	108,311,276
	1892..	69,212,867	19,953,245	5,508,714	14,762,862	109,437,688
Georgian Bay	1893..	47,247,446	15,436,571	4,539,343	10,557,727	77,781,087
	1892..	48,009,693	14,840,087	4,345,387	10,683,827	77,878,994
West Midland	1893..	127,232,345	43,158,227	10,369,028	24,386,555	205,146,155
	1892..	130,521,307	42,332,192	10,271,225	24,770,736	207,895,460
Lake Ontario	1893..	128,671,512	44,709,434	10,307,486	21,944,929	205,633,361
	1892..	133,127,883	44,140,350	10,449,924	22,070,521	209,788,678
St. Lawrence and Ottawa	1893..	101,170,358	35,662,036	9,724,240	20,930,976	167,487,610
	1892..	102,976,828	34,755,874	9,577,344	20,778,148	168,088,194
East Midland	1893..	36,721,070	11,783,047	3,275,887	7,827,633	59,607,637
	1892..	38,150,853	11,659,203	3,304,834	7,908,690	61,023,580
Northern Districts	1893..	6,274,308	1,881,870	659,856	1,904,970	10,721,004
	1882..	6,124,478	1,740,968	601,512	1,868,607	10,335,565
The Province	1893	602,664,361	200,189,888	51,435,919	116,070,902	970,361,070
	1892....	615,828,471	195,644,258	51,003,020	117,501,495	979,977,244
	1882-93.	629,947,011	181,783,963	48,481,543	104,248,851	964,461,368

The value of all classes of farm property is $970,361,070, which is a decline of $9,616,174 compared with the preceding year. The loss has been chiefly in the value of farm land, which has decreased by $13,164,110, and there has also been a decline of $1,430,593 in the value of live stock. On the other hand there has been a rise in the value of farm buildings of $4,545,630, while implements are worth $432,899 more than in 1892. The Lake Erie counties and the Northern Districts are the only groups having an increase in total value. Every group, with the exception of the Northern Districts, shows a decline in the value of farm land, while every district experiences an improvement in the value of buildings. In implements the Lake Ontario and East Midland groups fail to equal their own records of the previous year, and in live stock the St. Lawrence and Ottawa counties and the Northern Districts are the only groups which show an increase.

VALUE PER ACRE OCCUPIED. The table following gives the value per acre occupied of the various classes of farm property, by county groups and for the province, for the years 1892 and 1893 :

Districts.	Farm lands.		Buildings.		Implements.		Live Stock.		Total farm property.	
	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Lake Erie	37 40	37 54	11 57	11 22	3 00	2 97	6 06	6 28	58 03	58 01
Lake Huron	29 53	30 15	8 93	8 69	2 41	2 40	6 24	6 43	47 11	47 67
Georgian Bay	23 33	23 72	7 62	7 33	2 24	2 15	5 21	5 28	38 40	38 48
West Midland	39 11	40 10	13 27	13 00	3 19	3 16	7 50	7 61	63 07	63 87
Lake Ontario	42 19	43 69	14 66	14 49	3 38	3 43	7 19	7 24	67 42	68 85
St. Lawrence & Ottawa	18 99	19 39	6 69	6 54	1 83	1 80	3 93	3 91	31 44	31 64
East Midland	13 57	14 29	4 35	4 37	1 21	1 24	2 89	2 96	22 02	22 86
Northern Districts	3 20	3 15	96	89	34	31	97	96	5 47	5 31
The Province	26 25	26 91	8 72	8 55	2 24	2 23	5 05	5 13	42 26	42 82

Farm land of the province shows a decline in value of 66 cents per acre, and live stock a decrease of 8 cents, compared with their respective figures for the previous year, while buildings have increased in value by 17 cents, and implements by 1 cent. The result is that all classes of farm property combined show a decrease of 56 cents compared with the figures for 1892. The Lake Erie counties and the Northern Districts are the only groups exhibiting an increase in the total value of farm property. None of the groups, excepting the Northern Districts, have made any increase in the value per acre of farm land. Every district, excepting the East Midland, shows an increase in the value per acre of buildings, and the Lake Ontario and East Midland groups are the only ones failing to make an increase in the value per acre of implements. On the other hand, every group excepting the St. Lawrence and Ottawa counties and the Northern Districts shows a decline in the value per acre of live stock.

A still better basis of comparison is afforded in the following table, the values per acre of farm buildings, implements and live stock being calculated on the cleared portion :

Farm property.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.		
									1893.	1892.	1882-93.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Buildings	18 32	14 75	14 03	18 39	19 04	14 91	13 39	10 51	16 53	16 32	16 19
Implements ...	4 75	3 98	4 12	4 42	4 39	4 07	3 72	3 68	4 25	4 26	4 32
Live stock	9 60	10 32	9 62	10 39	9 35	8 75	8 90	10 65	9 58	9 80	9 28
Total	32 67	29 05	27 77	33 20	32 78	27 73	26 01	24 84	30 36	30 38	29 79

The figures for the province show an increase in the value of buildings per acre cleared, but the total value of farm property has slightly decreased compared with 1892. Buildings show their highest value per acre cleared in the Lake Ontario district, implements in the Lake Erie group, and live stock in the Northern Districts, while the West Midland group has the highest figures for all classes of farm property combined.

RENTALS OF LEASED FARMS. In the following table the average value and rental of such leased farms as were reported on farmers' schedules returned to this Bureau in 1893 is shown by districts. The rental per acre is given on the basis of land occupied and land cleared for 1892 and 1893, with the average for the eight years 1886-93; also the per cent. ratio that the rental bears to the value of land and buildings on the farm:

Leased farms.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
Average value—	$	$	$	$	$	$	$	$	$
Land	4,219	3,646	3,742	5,707	5,361	3,882	2,975	1,216	4,537
Buildings	1,582	1,319	1,200	1,927	1,691	1,529	1,002	652	1,570
Average rental	249	224	212	337	316	217	197	90	267
Rent per acre based on—	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Acres occupied 1893	2 22	1 99	1 60	2 39	2 58	1 33	1 14	42	2 00
Acres occupied 1892	2 30	1 98	1 67	2 43	2 59	1 33	1 20	42	1 98
Acres occupied 1886-93	2 16	1 94	1 58	2 32	2 65	1 34	1 46	43	2 01
Acres cleared 1893	2 98	2 57	2 15	3 00	3 17	2 11	2 04	1 70	2 72
Acres cleared 1892	3 03	2 55	2 22	3 06	3 16	2 11	2 08	1 96	2 74
Acres cleared 1886-93	2 95	2 61	2 23	3 00	3 24	2 15	2 40	1 77	2 79
Per cent. ratio of rental to value of farm 1893	4 29	4 51	4 29	4 41	4 48	4 01	4 95	4 82	4 37
Per cent. ratio of rental to value of farm 1886-93	4 07	4 23	4 28	4 23	4 42	3 86	4 54	4 95	4 24

The average value of the rented farm derived from those reported in 1893 was $6,107, and the rental was $267 or 4.37 per cent. on the value. In 1892 the figures were $6,019, $265 and 4.40 per cent., respectively. The average area of the rented farms reported was 134 acres in each year. The rented farms making returns in 1893 are, however, higher in value than those returned for 1892. The same farms are not all reported each year. In comparing many farms for the two years we find the value decreasing while the rental remains the same, thus indicating leases for more than one year.

VALUES OF LIVE STOCK.

VALUE OF HORSES. The following table shows by county groups and for the province the value of each of the four classes of farm horses, together with their total value for 1892 and 1893, and the value of all classes of horses sold in the year:

Districts.	Working horses.	Breeding mares.	Colts.	Stallions.	Total on hand.	Total sold in year.
	$	$	$	$	$	$
Lake Erie	4,087,415	1,016,962	1,532,702	205,072	6,842,151	573,574
Lake Huron	3,143,120	976,038	1,248,956	168,684	5,536,798	627,518
Georgian Bay	2,695,103	784,503	934,080	107,430	4,521,116	303,222
West Midland	5,628,197	1,699,971	2,204,697	393,872	9,926,737	745,526
Lake Ontario	6,526,565	1,871,531	2,355,479	298,143	11,051,718	830,308
St. Lawrence and Ottawa	5,156,695	1,278,570	1,601,601	262,643	8,299,509	592,920
East Midland	2,068,241	545,168	739,428	171,750	5,524,587	263,565
Northern Districts	486 377	156,067	126,037	56,375	824,856	67,891
Totals 1893	29,791,713	8,328,810	10,742,980	1,663,969	50,527,472	4,004,524
Totals 1892	31,810,977	10,202,800	11,759,426	2,039,717	55,812,920	4,280,132

The value of horses in the province is given at $50,527,472, a decrease of $5,285,448 compared with the figures for 1892. The decline in value has been general in every class. Less money has also been received for horses sold than in the preceding year.

VALUE OF CATTLE. In the next table the values of the various classes of cattle, their total values for 1892 and 1893, and the value of all classes of cattle sold during the year are given by county groups and for the province:

Districts.	Working oxen.	Milch cows.	Store cattle.	Other cattle.	Total on hand.	Total sold in year.
	$	$	$	$	$	$
Lake Erie	34,157	2,596,757	1,070,291	1,272,024	4,973,229	1,614,844
Lake Huron	18,436	2,398,189	2,434,770	1,719,884	6,571,279	3,039,830
Georgian Bay	38,065	1,897,682	992,945	1,182,882	4,111,574	1,523,399
West Midland	17,226	5,420,312	2,820,664	2,610,544	10,868,746	4,897,154
Lake Ontario	23,909	4,407,091	1,237,829	2,017,067	7,685,896	2,886,036
St. Lawrence and Ottawa	17,596	6,423,743	1,197,333	1,968,621	9,607,293	1,831,168
East Midland	37,124	1,918,176	487,149	703,166	3,145,615	684,721
Northern Districts	58,995	358,435	137,142	199,821	754,393	193,869
Totals 1893	245,508	25,420,385	10,378,123	11,674,009	47,718,025	16,671,021
Totals 1892	283,364	23,595,005	10,054,871	11,615,235	45,548,475	15,979,135

Taking the figures for the province, an increase is noticed in the value of all classes of cattle except oxen, the total being $47,718,025, a gain of $2,169,550 compared with the previous year. Cattle in the West Midland group are valued at $10,868,746. During the year cattle were sold to the value of $16,671,021, while in the preceding year $15,979,135 were realized from this source. Sales were greatest in the West Midland counties.

VALUE OF SHEEP AND HOGS. The table following gives the values of sheep and hogs in the province (also by classes of over and under one year), together with the value of sheep and hogs sold during the year by county groups and for the province. The totals are given for 1892 and 1893:

Districts.	Sheep.				Hogs.			
	Over one year.	Under one year.	Total on hand.	Total sold in year.	Over one year.	Under one year.	Total on hand.	Total sold in year.
	$	$	$	$	$	$	$	$
Lake Erie	625,799	345,458	971,257	346,581	462,570	647,393	1,109,963	1,767,738
Lake Huron	867,086	557,575	1,424,661	457,068	288,946	318,081	607,027	989,828
Georgian Bay	708,721	393,545	1,102,266	319,470	284,070	344,056	628,126	835,690
West Midland	1,108,970	664,764	1,773,734	609,845	579,549	815,049	1,394,598	2,549,632
Lake Ontario	1,063,069	481,065	1,544,134	453,045	522,321	682,903	1,205,224	2,009,499
St. L. & Ottawa	917,209	523,813	1,441,022	405,393	630,170	503,724	1,133,894	1,325,044
East Midland	381,940	189,962	571,902	149,790	255,142	185,872	441,014	679,405
Northern Dist's	126,968	60,174	187,142	43,096	56,227	46,056	102,283	139,992
Totals 1893	5,799,762	3,216,356	9,016,118	2,784,288	3,078,995	3,543,134	6,622,129	10,296,828
Totals 1892	5,468,506	3,101,057	8,569,557	2,640,190	2,449,404	3,029,689	5,479,093	8,775,852

An increase is observed in the value of both classes of sheep, the total being $9,016,118, an increase of $446,561 over the previous year. The value of sheep sold is estimated at $2,784,288, which is $144,098 more than in 1892. The figures for hogs are much higher under every heading than those of the previous year. While $10,296,828,

or $1,520,976 more than in 1892, have been sold, there still remain on the farm hogs to the value of $6,622,129, or $1,143,036 more than in the preceding year. The West Midland group makes the best showing for both sheep and swine.

VALUES OF POULTRY AND TOTAL LIVE STOCK. The table following gives the value of poultry by classes by county groups and for the province, and also the total value of live stock on hand and sold during the year :

Districts.	Poultry.					Total value of live stock on hand.	Total value of live stock sold in year.
	Turkeys.	Geese.	Other fowls.	Total on hand.	Total sold in year.		
	$	$	$	$	$	$	$
Lake Erie	46,220	22,750	198,976	267,946	113,823	14,164,546	4,416,560
Lake Huron	37,926	25,949	149,926	213,801	65,779	14,353,566	5,180,023
Georgian Bay	34,267	28,153	132,225	194 645	53,764	10,557,727	3,635,545
West Midland	75,859	43,755	303,126	422,740	129,523	24,386,555	8,931,680
Lake Ontario	98,596	54,007	305,354	457,957	178,281	21,944,929	6,357,169
St. Lawrence & Ottawa	112,494	54,437	282,327	449,258	146,580	20,930,976	4,301,105
East Midland	27,447	18,909	98,159	144,515	52,671	7,827,633	1,830,152
Northern Districts	6,804	5,237	24,255	36,296	13,274	1,904,970	458,122
Totals 1893	439,613	253,197	1,494,348	2,187,158	753,695	116,070,902	34,510,356
Totals 1892	415,348	254,396	1,421,706	2,091,450	778,308	117,501,495	32,453,617

Although a decline has occurred in the value of geese, the increase in the other groups raises the total value of poultry to $2,187,158, a gain of $95,708 over the figures of the preceding year. The sales, however, are less by $24,613 than in 1892. The Lake Ontario group shows the highest value for poultry. The total value of live stock on hand is given as $116,070,902, a decrease of $1,430,593 compared with the previous year. The total sales were estimated at $34,510,356, an increase of $2,056,739 over the figures for 1892.

VALUE OF APIARY OUTFIT. The following table shows by county groups the number of hives of bees kept in the township municipalities of Ontario in 1892 and 1893, together with the value in 1893, including the outfit required :

Bees.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.
No. of hives.. 1893	37,816	27,786	14,019	31,244	38,594	46,382	8,161	1,166	205,168
No. of hives.. 1892	36,191	28,924	12,030	28,201	38,672	43,730	7,064	1,010	195,822
Value of Bees and outfit, 1893	$ 201,855	$ 186,265	$ 72,663	$ 209,213	$ 222,465	$ 220,952	$ 42,569	$ 6,963	$ 1,162,945

The number of hives increased by 9,346. The value estimated in 1893 amounted to $1,162,945, which is an average of $5.67 for each hive.

VALUES OF LIVE STOCK PER HEAD. The table following gives the value of the various classes of live stock per head on hand and disposed of during the year:

Farm Live Stock.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.	
									1893.	1892.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Horses:										
Working horses	78 00	83 00	84 00	78 00	82 00	75 00	80 00	94 00	80 00	89 00
Breeding mares	77 00	84 00	84 00	83 00	90 00	77 00	79 00	97 00	83 00	93 00
Colts	51 00	53 00	52 00	53 00	57 00	46 00	50 00	52 00	52 00	55 00
Stallions	324 00	347 00	322 00	381 00	353 00	308 00	487 00	409 00	356 00	407 00
Horses sold in year (1893)	83 00	85 00	84 00	84 00	89 00	77 00	82 00	79 00	84 00	.. ..
Horses sold in year (1892)	87 47	99 25	91 35	93 87	94 12	81 63	79 73	84 79	.....	91 15
Cattle:										
Working oxen	49 00	52 00	58 00	55 00	54 00	32 00	39 00	46 00	47 00	48 00
Milch cows	31 70	33 40	31 35	35 28	34 83	28 42	27 24	28 10	31 63	29 95
Store cattle	25 96	34 06	24 47	30 56	27 34	21 41	19 83	20 69	27 45	27 42
Other cattle	13 46	14 13	12 82	13 97	15 78	12 01	10 94	10 16	13 40	13 37
Sold or killed in year (1893)	30 65	40 76	35 86	41 15	38 72	28 72	25 40	25 89	36 12	.....
Sold or killed in year (1892)	30 51	42 09	35 27	44 33	37 11	26 48	28 37	24 25	.....	36 62
Sheep.										
Over one year	5 57	5 87	5 52	5 98	6 81	4 58	4 99	5 00	5 62	5 58
Under one year	3 40	3 93	3 53	3 95	3 75	3 08	3 04	3 08	3 56	3 56
Sold or killed in year (1893)	4 35	5 02	4 47	5 18	4 84	3 64	3 72	3 95	4 52	.....
Sold or killed in year (1892)	4 51	5 02	4 52	5 20	4 89	3 75	3 89	4 14	.....	4 58
Hogs:										
Over one year	12 14	14 43	13 74	15 90	15 28	13 46	13 12	11 98	13 97	10 59
Under one year	4 47	4 70	4 64	4 87	4 51	4 13	3 55	4 02	4 48	3 96
Sold or killed in year (1893)	10 39	10 97	9 84	10 56	10 10	11 86	10 54	10 30	10 56	.....
Sold or killed in year (1892)	8 85	8 86	8 16	8 99	8 21	11 07	9 26	9 13	.....	8 97
Poultry:										
Turkeys	54	65	66	71	74	73	74	62	69	66
Geese	55	52	56	59	64	55	57	72	58	57
Other fowls	25	23	25	24	26	25	24	25	25	24
Sold or killed in year (1893)	35	37	34	37	40	38	40	38	37	.....
Sold or killed in year (1992)	35	35	33	40	44	44	37	31	.....	40

Horses sold (all classes) averaged $84 per head; cattle, $36.12; sheep, $4.52; hogs $10.56; while all classes of fowl averaged 37 cents. Of course there is a wide range in values as between the various classes both of live stock and poultry, as can be seen in the estimated values of animals and fowls on hand. Horses brought $7.15 less than in 1892 while hogs advanced $1.59 per head.

VALUES OF CROPS.

MARKET PRICES. The appended table is compiled from market reports of newspapers published at twenty-nine market centres, and the figures are taken during th

period when each of the various articles of farm produce contained in the table is marketed. The average price is also given for a series of years :

Markets	Fall wheat, per bush.	Spring wheat, per bush.	Barley, per bush.	Oats, per bush.	Rye, per bush.	Peas, per bush.	Corn (in ear), per bush.	Buckwheat, per bush.	Beans, per bush.	Potatoes, per bush.	Hay, per ton.	Wool, per lb.
	cts.	cts.	cts.	cts.	cts	cts.	cts.	cts.	cts.	cts.	$ c.	cts.
1893	59.9	59.4	40.1	33.2	47.5	54.0	26.5	41.8	118.0	39.5	7 64	18.2
1892	70.7	67.8	41.3	30.8	55.8	59.0	26.3	42.2	98.8	50.4	8 20	18.2
1891	95.1	92 9	49.1	36.5	72.3	63.8	31.1	44.1	106.1	32.6	11 91	19.4
1890	94.2	91.3	50.2	41.1	52.7	60.3	30.5	43.0	128.5	44.3	7 95	20.5
1889	88.4	88.1	44.0	30.5	50.9	55.7	25 9	39.5	126.7	45.5	9 98	20.7
1888	102.4	99.3	60.1	40.5	60.2	65.4	29.3	49.3	113.7	31.7	16 71	20.4
1887	78.4	78.0	56.7	34.6	49.5	55.9	28.7	45.0	97.9	62.8	11 62	22.1
1886	73.6	72.5	51.3	32.0	52.2	52.6	27.6	33.7	83.7	44.9	9 69	19.1
1885	81.5	80.6	55.2	31.5	55.2	58.0	27.9	39.2	80.0	41.1	9 85	17.4
1884	80.5	81.4	53.6	33.1	59.7	64 4	45.0	40.0	118.0	40.0	9 56	17.8
1883	105.0	107.0	57.0	38.0	62.0	71 0	.....	.....	.....	62.0	9 02	16.9
1882	101.0	106.0	65.0	43.0	64.0	74.0	40.0	40 0	197.0	64.0	11 54	16.9
1882-93	85.8	86.6	53.1	35.3	59.1	60.8	31.2	41.6	114.8	45.0	9 78	18 8

Fall wheat, spring wheat, barley, rye and hay averaged lower in price in 1893 than in any other year comprising the table. Oats, corn (in the ear) and beans are the only crops showing better crops than in 1892, while buckwheat and beans are the only ones which surpass their own average for the twelve years 1892-3. The falling off in the price of wheat is the most remarkable feature of the table. When it is considered that the next lowest year for wheat is the one immediately preceding, the immediate outlook for growers of this grain is not encouraging.

Values of Crops. In the following table the value of each crop is given, based upon market prices, acreage and yield, for each of the five years 1889-93, together with the averages for the twelve years 1882-93 .

Crops.	1893.	1892.	1891.	1890.	1889.	Average 1882-93.
	$	$	$	$	$	$
Fall wheat	10,509,604	14,488,195	20,800,736	13,439,875	11,493,648	15,625,553
Spring wheat	2,486,521	5,620,888	9,951,019	7,015,405	5,019,680	7,308,373
Barley	3,932,241	5,069,293	7,925,675	7,831,285	10,290,011	9,539,370
Oats	19,450,064	19,945,480	27,378,483	21,687,734	19,625,622	20,797,539
Rye	472,516	631,937	820,337	823,883	728,725	933,752
Peas	7,651,236	8,551,714	11,690,367	9,279,756	7,524,645	8,494,830
Corn, husking	3,729,335	2,953,358	5,687,773	4,273,410	2,395,283	3,977,141
Corn, silo	2,099,048	1,897,814				
Buckwheat	995,031	1,063,952	1,150,191	883,100	502,668	660,308
Beans	783,886	529,500	816,546	978,323	471,188	563,688
Potatoes	5,099,929	6,194,068	7,842,219	7,779,575	6,531,766	8,004,637
Mangel-wurzels	686,605	828,038	942,356	927,561	577,878	695,427
Carrots	371,431	478,420	476,752	526,318	428,995	452,003
Turnips	5,697,535	6,354,164	6,885,345	4,704,056	3,702,126	4,586,082
Hay	37,921,575	35,955,672	28,498,224	34,232,024	37,208,564	32,895,141
Totals	101,886,557	110,562,493	130,866,023	114,382,305	106,500,799	114,533,844

The value of the field crops of the province in 1893 is $101,886,557, which is less than in any other year of the table. Compared with their respective values in the previous

year, corn, beans and hay are the only crops showing an increase. Compared with the average for the twelve years, corn, buckwheat, beans, turnips and hay exceed their own averages. The great decline in the value of spring wheat and barley, and the remarkable increase in the value of the corn crop, are the most striking features of the table.

Crop Values by County Groups. The total value of field crops by county groups and for the province for each of the five years 1889-93, together with the average for the twelve years 1882-93, is shown in the following table:

Districts.	1893.	1892.	1891.	1890.	1889	1882 93.
	$	$	$	$	$	$
Lake Erie	13,268,186	13,040,993	17,117,703	14,656,955	12,835,861	14,544,403
Lake Huron	10,995,090	12,478,818	14,368,299	12,825,695	10,533,759	12,224,492
Georgian Bay	9,197,514	10,163,189	11,543,525	10,539,774	9,785,415	10,104,068
West Midland	21,542,674	23,247,513	29,051,689	25,473,526	20,748,309	24,317,657
Lake Ontario	20,536,270	23,503,908	27,355,582	23,333,827	23,786,979	24,551,668
St. Lawrence & Ottawa	17,893,991	18,988,107	21,893,436	18,298,546	19,699,465	19,817,596
East Midland	6,659,759	7,115,519	7,883,091	7,514,326	7,746,675	7,522,081
Northern Districts	1,793,073	2,024,446	1,652,698	1,739,656	1,364,336	1,451,879
The Province	101,886,557	110,562,493	130,866,023	114,382,305	106,500,799	114,533,844

The Lake Erie group is the only one exceeding its own figures for the previous year, while the Northern Districts alone show an increase in value compared with the average for the twelve years 1882-93. The West Midland group has regained the place held in 1890 and 1891 as the district showing the greatest value in field crops, the Lake Ontario counties resuming second place.

Value of Produce per Acre under Crop. The table following gives the value per acre raised of each of the staple field crops by county groups and for the province for 1892 and 1893, with the averages for 1882-93. The average value of all crops is also given for the same periods:

Crops.	Lake Erie.	Lake Huron.	Georgian Bay.	West Midland.	Lake Ontario.	St. Lawrence and Ottawa.	East Midland.	Northern Districts.	The Province.		
									1893.	1892.	1882-93.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Fall wheat	10.89	11.56	10.30	12.25	11.75	11.69	11.14	13.43	11.50	14.99	17.19
Spring wheat	6.81	6.95	7.43	7.87	5.96	7.82	5.76	9.45	6.97	8.63	13.20
Barley	7.98	8.61	9.42	9.28	8.10	7.88	7.42	8 72	8.41	10.15	13.63
Oats	9.33	10.47	10.59	11.17	10.23	8.90	9.22	9.91	10.04	10.71	12.22
Rye	7.02	6.84	6.94	7.65	6.44	7.16	6 88	7.47	6.90	8.65	9.51
Peas	8.13	11.71	11.82	10.34	10.30	9.03	9.75	12.62	10.36	11.04	12.43
Corn, husking	18.99	14.30	13.28	15.98	14.84	15.59	14.31	11.20	17.16	16.28	18.75
Corn, silo	19.49	21.88	21.47	22.83	21.97	22.27	20.68	17.09	21.90	20.76	
Buckwheat	6.86	6.55	6.81	8.08	7.51	7.89	7.02	7.63	7.44	8.50	8.33
Beans	15.36	16.26	20.29	15.21	18.66	20.98	15.39	19.65	16.04	15.93	19.66
Potatoes	33.31	32.46	38.59	39.98	38.69	28.99	40.12	45.23	35.76	42.51	52.13
Mangel-wurzels	34.08	32.90	30.78	32.45	32.78	27.77	27.85	20.88	31.91	37.59	34.92
Carrots	42.91	39.13	41.92	42.96	40.86	37.42	37.98	32.90	39.99	48.13	43.93
Turnips	37.74	36.20	36.28	44.25	46.36	36.44	38.82	30.24	41.71	49.62	41.83
Hay	13.52	13.19	12.87	15.34	13.51	13.63	13.08	12.90	13.71	14.29	14.00
All crops:											
1893	12 68	12.64	12.54	14.03	12.37	12.01	11.45	13.07	12.65	....	.....
1892	13.00	14.35	13.86	15.07	13.85	12.63	12.00	14.63	.....	13.68	.....
1882 93	15.33	15.26	14.86	16.46	15.09	14.01	13.36	14.78	.....	.....	15.05

In examining the total value of all crops per acre it will be seen that every county group falls below its record for the previous year, and also below the average for the twelve years, 1882-93. In this connection the West Midland group retains its place as leader, the figures for all crops being $14.03 in that district, the lowest record being found in the East Midland counties, where but $11.47 was averaged, and the average for the province being $12.65, or $1.03 less than the low average of 1892, and $2.40 below the average for the twelve years. Corn and beans are the only crops showing an improvement over their respective figures for the previous years, while not a single crop is equal to its own average for 1882-93. The figures for spring wheat and rye are rather discouraging.

PER CENT. RATIOS OF VALUES PER ACRE. The following table, by means of per cent. ratios, compares the values per acre of the various crops with their respective averages for the twelve years 1882-93, by county groups and for the province :

Districts.	Fall wheat.	Spring wheat.	Barley.	Oats.	Rye.	Peas.	Corn.	Buckwheat.	Beans.	Potatoes.	Mangel-wurzels.	Carrots.	Turnips.	Hay.	All field crops.
Lake Erie	67	56	62	76	79	75	97	89	82	72	106	116	108	93	83
Lake Huron	67	58	61	84	67	87	95	87	85	64	92	89	88	94	83
Georgian Bay	57	58	70	90	67	90	107	92	102	69	92	92	87	97	84
West Midland	69	61	63	84	80	80	99	108	77	77	89	92	102	98	85
Lake Ontario	67	44	59	80	74	85	104	89	88	79	92	87	107	96	82
St. Lawrence and Ottawa	71	56	61	78	67	76	107	92	84	54	92	95	102	101	86
East Midland	66	47	58	84	75	83	108	85	76	73	84	89	103	109	86
Northern Districts	75	60	73	91	66	90	109	83	95	67	133	95	90	105	88
The Province	67	53	62	82	73	83	99	89	82	69	91	91	100	98	84

In the foregoing table both market price and yield per acre combine to affect the result. The evenness of the figures of each group for all crops is worthy of notice, for the lowest group shows a per cent. ratio of 82, while the highest is 86. The general lowness of the ratio is seen in the fact that the only crop reaching its own standard for the province is turnips, while half the crops do not touch 100 in a single group. The crop showing the smallest per cent. ratio for the province is spring wheat, which reaches only 53.

LABOR AND WAGES.

The following reference was made to labor and wages in the June bulletin : "The most noticeable feature of the reports concerning farm labor is the frequent mention of the departure of young Canadians from the homestead for the United States and the Northwest, and their replacing by inferior help from the old country, many coming from the "Homes." There appears to be a sufficiency of laborers of a certain sort, but men of skill are scarce. Wages for the working season range from $14 to $20 with board, the average being $17.17, or 38 cents more than last year. The rate without board runs from $20 to $27.50, the average being $24.70, an increase of 10 cents over the previous year. Day laborers on the farm average 88 cents with board, or two cents more than in 1891, but first-class men get from $1.00 to $1.25 Day wages without board average $1.17, which is also two cents more than in the preceding year, but skilled laborers get as high as $1.37½ and even $1.50 per day."

The August bulletin reported upon the condition of farm labor at the time of harvest : "By the answers given to the questions on this topic it would appear that the farmers do not have much additional help in the harvest. They appear to hire men for the greater part of the year, say seven or eight months, and trust to machinery to enable them to

secure their crops. In the Lake Ontario district there appears to be a scarcity of farm laborers, with wages in harvest time ranging from $1.25 to $2 per day, and from $15 to $40 per month. From the St. Lawrence and Ottawa district some sections report a scarcity because the young men are in the lumber mills. In the East Midland district the supply of labor is given as fairly good, and the wages $1.25 per day, and $26 to $30 a month. Other sections of this district report the anomalous condition of the scarcity of labor and low wages. In the Northern district the supply was not sufficient, save in Algoma, where quite a number could not get work. The supply in the Lake Erie district appears to be "not quite sufficient," and the average wages are quoted at $1.25 per day and $25 per month. In the Lake Huron district labor is plentiful, except in the county of Bruce, while there is a scarcity in the Georgian Bay and West Midland districts. The average rate of wages for harvest hands throughout the province is $1.25 per day and $24 per month."

The November bulletin contained the following: "At the height of harvesting a scarcity of field help was experienced in many quarters, although in neighboring sections a sufficiency of laborers was reported. Later on, however, the supply was fully equal to the demand, and save in the vicinity of lumbering operations there has been plenty of assistance for farm work, excepting in the case of domestics, who continue comparatively scarce, owing to the attractions of town life to the average girl. As to the rise or fall of wages to general farm hands opinions differ. The majority, however, appear to believe that little change will be made, but that an increase in the rate is more improbable than a decrease owing to the low prices prevailing for farm products.

WAGES OF FARM LABORERS. The following table presents the average rates of wages of farm laborers, by the year and by the month, with and without board, by county groups and for the province for the years 1892 and 1893, together with the averages for the twelve years 1882-93; also the amounts paid domestic servants in 1892 and 1893.

Districts.	Per year.						Per month in working season.						Domestics per month with board.	
	With board.			Without board.			With board.			Without board.				
	1893.	1892.	82-93.	1893.	1892.	82-93.	1893.	1892.	82-93.	1893.	1892.	82-93.	1893.	1892.
	$	$	$	$	$	$	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Lake Erie	155	159	159	259	256	251	16.84	16.75	17.25	26.06	25.62	26.16	6.53	6.36
Lake Huron	165	156	162	265	254	258	17.50	16.94	17.77	26.84	27.25	27.31	6.41	6.28
Georgian Bay	158	151	158	259	260	256	16.81	16.30	17.58	25.92	25.78	27.09	6.30	6.07
West Midland	159	154	160	242	252	250	16.97	16.38	17.32	25.87	25.49	26.43	6.56	6.41
Lake Ontario	164	158	163	256	252	254	17.04	16.57	17.38	25.33	26.22	26.47	6.72	6.42
St. Lawrence and Ottawa	156	152	160	252	242	251	17.09	15.99	17.66	25.91	24.60	26.54	6.31	5.83
East Midland	158	154	164	250	256	257	17.32	16.31	17.50	25.70	26.28	26.74	6.10	5.76
Northern Districts	185	166	174	295	270	277	19.23	18.41	19.45	27.00	28.13	29.08	6.29	6.16
The Province	160	156	161	255	253	254	17.13	16.52	17.49	25.97	25.92	26.75	6.47	6.21

Taking the figures for the province, the average yearly wages, with board, is $160, which is an increase of $4 over that paid in 1892, while without board, the sum of $255 was paid, an increase of $2 compared with the previous year. The rate paid per month, with board, is $17 13, or 61 cents more than in the preceding year, while without board the amount was $25 97 or 5 cents less than in 1892. However, both monthly and yearly wages fail to equal their respective averages for the twelve years 1882-93. Farm laborers generally receive highest wages in the Northern Districts. The average wages paid domestic servants on the farm is $6.47 per month, an increase of 26 cents over last year's rate.

STATISTICS OF

VALUES, RENT AND FARM WAGES.

FARM VALUES—LAND, BUILDINGS AND IMPLEMENTS.

TABLE I. Showing by County Municipalities and groups of Counties the value of Farm Land, Buildings and Implements in Ontario in 1892 and 1893.

Counties.	Farm Lands.		Farm Buildings.		Farm Implements.	
	1893.	1892.	1893.	1892.	1893.	1892.
	$	$	$	$	$	$
Essex	17,122,556	16,767,979	4,642,303	4,411,578	1,228,717	1,247,017
Kent	23,434,525	23,649,544	6,038,633	5,752,541	1,556,419	1,553,414
Elgin	17,043,668	17,339,846	5,042,255	4,979,330	1,335,369	1,276,051
Norfolk	11,978,622	11,881,174	4,336,115	4,249,453	1,098,008	1,107,194
Haldimand	9,173,979	9,399,182	3,629,548	3,590,258	998,694	971,647
Welland	8,700,155	8,666,837	3,352,673	3,239,179	796,155	788,757
Totals	87,453,505	87,704,562	27,041,527	26,222,339	7,013,362	6,944,080
Lambton	18,886,706	19,704,874	5,066,129	4,924,419	1,384,759	1,420,751
Huron	29,061,641	29,288,508	8,876,636	8,780,193	2,364,814	2,341,053
Bruce	19,945,470	20,219,485	6,574,411	6,248,633	1,797,144	1,746,910
Totals	67,893,817	69,212,867	20,517,176	19,953,245	5,546,717	5,508,714
Grey	21,853,413	22,029,796	7,604,941	7,333,733	2,270,319	2,203,431
Simcoe	25,394,033	25,979,897	7,831,630	7,506,354	2,269,024	2,141,956
Totals	47,247,446	48,009,693	15,436,571	14,840,087	4,539,343	4,345,387
Middlesex	32,722,005	33,925,004	10,087,179	9,988,430	2,346,679	2,433,436
Oxford	21,507,881	22,110,569	7,605,978	7,367,966	1,685,276	1,636,983
Brant	10,053,511	10,271,143	3,946,893	3,879,925	827,410	849,602
Perth	20,211,990	20,501,444	6,816,248	6,583,203	1,718,588	1,711,545
Wellington	20,481,740	20,928 199	7,219,564	7,063,645	1,779,783	1,735,014
Waterloo	13,468,037	13,743,204	5,063,570	4,973,706	1,259,637	1,178,201
Dufferin	8,787,181	9,041,744	2,418,795	2,475,317	751,655	726,444
Totals	127,232,345	130,521,307	43,158,227	42,332,192	10,369,028	10,271,225
Lincoln	9,125,518	9,146,764	3,957,361	3,728,176	906,065	816,281
Wentworth	13,437,235	13,746,951	4,969,893	4,759,982	1,126,983	1,129,814
Halton	9,813,058	9,938,001	3,644,338	3,537,405	793,712	789,631
Peel	13,086,131	13,630,076	4,457,046	4,408,493	1,020,605	1,054,233
York	29,242,165	30,572,975	8,734,427	8,796,282	1,978,266	1,982,435
Ontario	18,539,785	19,260,241	6,360,181	6,204,504	1,441,865	1,505,939
Durham	14,036,467	14,561,995	4,424,383	4,619,031	1,061,434	1,093,098
Northumberland	13,621,409	14,075,379	4,981,765	5,024,493	1,224,563	1,290,954
Prince Edward	7,739,644	8,195,501	3,180,040	3,061,984	750,993	787,539
Totals	128,671,512	133,127,883	44,709,434	44,140,350	10,307,486	10,449,924
Lennox and Addington	8,105,075	8,616,427	3,370,421	3,208,897	791,961	773,258
Frontenac	8,080,796	8,373,418	2,928,071	2,946,509	852,572	840,313
Leeds and Grenville	18,777,332	18,568,511	6,644,955	6,774,527	1,592,221	1,618,060
Dundas	7,846,095	7,956,422	2,693,711	2,635,167	758,321	709,966
Stormont	5,898,671	6,051,072	2,367,463	2,210,171	579,856	557,894
Glengarry	6,686,710	6,850,894	2,658,412	2,561,486	717,962	748,892
Prescott	6,614,809	6,867,920	2,418,144	2,223,206	676,142	632,147
Russell	4,317,974	4,277,553	1,261,949	1,236,888	412,925	427,679
Carleton	18,562,011	18,726,714	4,896,074	4,830,863	1,464,902	1,409,642
Renfrew	7,842,663	7,750,256	3,112,762	2,795,358	977,613	959,017
Lanark	8,438,222	8,937,641	3,310,074	3,332,802	899,765	900,476
Totals	101,170,358	102,976,828	35,662,036	34,755,874	9,724,240	9,577,344
Victoria	11,194,320	11,632,664	3,415,293	3,355,372	987,958	999,255
Peterborough	10,086,839	10,411,553	3,124,877	3,078,118	825,790	810,923
Haliburton	1,129,833	1,066,625	334,890	294,987	110,766	95,061
Hastings	14,310,078	15,040,011	4,907,987	4,930,726	1,351,373	1,399,595
Totals	36,721,070	38,150,853	11,783,047	11,659,203	3,275,887	3,304,834
Muskoka	1,921,858	1,976,804	693,547	641,845	227,015	208,718
Parry Sound	1,752,778	1,626,602	512,129	439,955	188,307	155,319
Nipissing	534,353	485,639	136,913	126,175	50,263	38,702
Algoma	2,065,319	2,035,433	539,281	532,993	194,271	198,773
Totals	6,274,308	6,124,478	1,881,870	1,740,968	659,856	601,512
The Province	602,664,361	615,828,471	200,189,888	195,644,258	51,435,919	51,003,020

FARM VALUES—LIVE STOCK AND TOTAL PROPERTY—RENTALS.

TABLE II. Showing by County Municipalities and groups of Counties the values of Farm Live Stock and total Farm Property in Ontario in 1892 and 1893; also the rent per acre of leased farms as reported in 1893, with the average derived for the eight years 1886-93.

Counties.	Farm Live Stock.		Total Farm Property.		Rent per acre on land—			
					Occupied.		Cleared.	
	1893.	1892.	1893.	1892.	1893.	1886-93.	1893.	1886-93.
	$	$	$	$	$ c.	$ c.	$ c.	$ c.
Essex	2,339,165	2,499,196	25,332,741	24,925,770	2 75	2 20	3 56	3 26
Kent	3,415,318	3,408,323	34,444,895	34,363,822	2 73	2 62	3 48	3 62
Elgin	3,042,448	3,230,798	26,463,740	26,896,025	2 60	2 30	3 45	3 15
Norfolk	2,178,067	2,221,749	19,590,812	19,459,570	2 10	1 90	2 73	2 59
Haldimand	1,717,055	1,839,674	15,519,276	15,800,761	1 53	1 80	1 97	2 31
Welland	1,472,493	1,458,361	14,321,476	14,153,137	2 30	2 09	2 78	2 59
Totals	14,164,546	14,658,104	135,672,940	135,529,085	2 22	2 16	2 98	2 95
Lambton	3,272,137	3,547,399	28,609,731	29,597,443	1 84	1 88	2 96	2 86
Huron	6,366,764	6,470,090	46,669,855	46,879,844	2 34	2 17	2 79	2 77
Bruce	4,714,665	4,745,373	33,031,690	32,960,401	1 72	1 71	2 16	2 29
Totals	14,353,566	14,762,862	108,311,276	109,437,688	1 99	1 94	2 57	2 61
Grey	5,776,347	5,824,392	37,505,020	37,391,352	1 28	1 30	1 81	1 89
Simcoe	4,781,380	4,859,435	40,276,067	40,487,642	2 22	1 96	2 69	2 60
Totals	10,557,727	10,683,827	77,781,087	77,878,994	1 60	1 58	2 15	2 23
Middlesex	5,942,150	6,296,498	51,098,013	52,643,368	2 50	2 54	3 10	3 29
Oxford	4,082,492	3,972,994	34,881,627	35,088,512	2 79	2 73	3 50	3 52
Brant	1,643,697	1,651,260	16,471,511	16,651,930	3 06	2 83	3 58	3 42
Perth	4,200,756	4,281,713	32,947,582	33,077,905	2 43	2 35	3 08	2 97
Wellington	4,580,437	4,476,520	34,061,524	34,203,378	1 99	2 00	2 54	2 58
Waterloo	2,235,604	2,250,437	22,026,848	22,145,548	2 22	2 24	2 86	2 84
Dufferin	1,701,419	1,841,314	13,659,050	14,084,819	1 64	1 54	2 17	2 20
Totals	24,386,555	24,770,736	205,146,155	207,895,460	2 39	2 32	3 00	3 00
Lincoln	1,410,336	1,469,142	15,399,380	15,160,363	2 42	2 33	2 90	2 86
Wentworth	2,078,168	2,134,848	21,612,279	21,771,595	3 40	2 90	4 49	3 63
Halton	1,697,303	1,649,872	15,978,411	15,914,909	2 20	2 29	2 96	2 94
Peel	2,318,213	2,272,167	20,881,995	21,364,969	2 86	2 73	3 29	3 28
York	3,957,157	4,114,091	43,912,015	45,465,783	3 01	3 10	3 60	3 74
Ontario	3,906,811	3,720,520	30,251,642	30,691,204	2 73	2 79	3 34	3 44
Durham	2,537,048	2,546,825	22,059,332	22,820,949	2 61	2 78	3 21	3 35
Northumberland	2,648,882	2,702,851	22,476,619	23,093,677	1 93	2 03	2 52	2 55
Prince Edward	1,391,011	1,460,205	13,061,688	13,505,229	1 85	2 09	2 11	2 56
Totals	21,944,929	22,070,521	205,633,361	209,788,678	2 58	2 65	3 17	3 24
Lennox & Addington	1,801,885	1,727,942	14,069,342	14,326,524	1 50	1 56	2 35	2 35
Frontenac	1,706,870	1,693,523	13,568,309	13,853,763	1 00	1 17	1 49	1 80
Leeds and Grenville	3,592,969	3,494,285	30,607,477	30,455,383	1 70	1 44	2 34	2 19
Dundas	1,375,625	1,361,707	12,673,752	12,663,262	1 22	1 60	2 92	2 65
Stormont	1,303,068	1,101,693	10,149,058	9,920,830	1 21	1 43	1 96	2 18
Glengarry	1,449,983	1,487,202	11,513,067	11,648,474	1 50	1 40	2 40	2 32
Prescott	1,282,205	1,247,827	10,991,300	10,971,100	1 90	1 62	2 54	2 31
Russell	857,310	1,019,458	6,850,158	6,961,578	1 13	1 24	2 25	2 21
Carleton	2,792,171	2,869,477	27,715,158	27,836,696	1 29	1 71	2 48	2 56
Renfrew	2,420,231	2,414,732	14,353,269	13,919,363	1 20	85	2 06	1 72
Lanark	2,348,659	2,360,302	14,996,720	15,531,221	76	81	1 24	1 34
Totals	20,930,976	20,778,148	167,487,610	168,088,194	1 33	1 34	2 11	2 15
Victoria	2,511,361	2,694,670	18,108,932	18,681,961	1 33	1 72	2 26	2 64
Peterborough	1,884,907	1,903,324	15,922,413	16,203,918	1 24	1 25	2 16	2 07
Haliburton	322,677	280,452	1,898,166	1,737,125	30	33	1 35	1 45
Hastings	3,108,688	3,030,244	23,678,126	24,400,576	1 06	1 66	1 75	2 48
Totals	7,827,633	7,908,690	59,607,637	61,023,580	1 14	1 46	2 04	2 40
Muskoka	627,765	601,054	3,470,185	3,428,421	37	34	1 48	1 63
Parry Sound	490,077	487,679	2,943,291	2,709,555	33	44	1 70	1 81
Nipissing	138,313	141,853	859,842	792,369	47	44	3 05	2 62
Algoma	648,815	638,021	3,447,686	3,405,220	73	64	1 68	1 73
Totals	1,904,970	1,868,607	10,721,004	10,335,565	42	43	1 70	1 77
The Province	116,070,902	117,501,495	970,361,070	979,977,244	2 00	2 01	2 72	2 79

FARM VALUES—AVERAGE PER ACRE.

TABLE III. Showing by County Municipalities and groups of Counties the average value per acre occupied of Farm Land, Buildings, Implements and Live Stock in Ontario for the years 1892 and 1893.

Counties.	Land.		Buildings.		Implements.		Live Stock.		Total property.	
	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Essex	39 80	39 06	10 79	10 28	2 85	2 90	5 44	5 82	58 88	58 06
Kent	41 42	41 68	10 67	10 14	2 75	2 74	6 04	6 01	60 88	60 57
Elgin	39 11	39 68	11 57	11 39	3 07	2 92	6 98	7 39	60 73	61 38
Norfolk	30 18	30 11	10 92	10 77	2 77	2 80	5 49	5 63	49 36	49 31
Haldimand	32 72	33 60	12 94	12 83	3 56	3 47	6 12	6 58	55 34	56 48
Welland	38 02	37 97	14 65	14 19	3 48	3 45	6 43	6 39	62 58	62 00
Group	37 40	37 54	11 57	11 22	3 00	2 97	6 06	6 28	58 03	58 01
Lambton	28 58	29 77	7 67	7 44	2 10	2 15	4 95	5 36	43 30	44 72
Huron	36 33	36 67	11 10	11 00	2 97	2 93	7 96	8 10	58 36	58 70
Bruce	23 79	24 21	7 84	7 48	2 15	2 09	5 62	5 68	39 40	39 46
Group	29 53	30 15	8 93	8 69	2 41	2 40	6 24	6 43	47 11	47 67
Grey	20 57	20 75	7 16	6 91	2 13	2 07	5 44	5 49	35 30	35 22
Simcoe	26 37	26 99	8 13	7 80	2 36	2 23	4 97	5 05	41 83	42 07
Group	23 33	23 72	7 62	7 33	2 24	2 15	5 21	5 28	38 40	38 48
Middlesex	43 19	44 79	13 32	13 19	3 10	3 21	7 84	8 31	67 45	69 50
Oxford	45 62	46 75	16 13	15 58	3 57	3 46	8 66	8 40	73 98	74 19
Brant	46 58	47 56	18 29	17 97	3 83	3 93	7 61	7 65	76 31	77 11
Perth	39 03	39 58	13 17	12 71	3 32	3 31	8 11	8 27	63 63	63 87
Wellington	32 69	33 37	11 52	11 26	2 84	2 77	7 31	7 14	54 36	54 54
Waterloo	43 87	44 78	16 50	16 21	4 10	3 84	7 28	7 33	71 75	72 16
Dufferin	24 65	25 33	6 79	6 94	2 11	2 04	4 77	5 16	38 32	39 47
Group	39 11	40 10	13 27	13 00	3 19	3 16	7 50	7 61	63 07	63 87
Lincoln	47 70	47 88	20 69	19 52	4 74	4 27	7 37	7 69	80 50	79 36
Wentworth	49 45	50 58	18 29	17 51	4 15	4 16	7 65	7 86	79 54	80 11
Halton	43 92	44 24	16 26	15 75	3 54	3 52	7 57	7 34	71 29	70 85
Peel	45 41	47 27	15 47	15 29	3 54	3 66	8 04	7 88	72 46	74 10
York	54 63	57 11	16 32	16 43	3 69	3 70	7 39	7 69	82 03	84 93
Ontario	36 92	38 26	12 67	12 33	2 88	2 99	7 78	7 39	60 25	60 97
Durham	37 87	39 43	11 94	12 51	2 86	2 96	6 84	6 89	59 51	61 79
Northumberland	31 18	32 36	11 40	11 55	2 80	2 97	6 07	6 22	51 45	53 10
Prince Edward	33 71	35 86	13 85	13 40	3 27	3 45	6 06	6 39	56 89	59 10
Group	42 19	43 69	14 66	14 49	3 38	3 43	7 19	7 24	67 42	68 85
Lennox and Addington	18 94	20 07	7 87	7 47	1 85	1 80	4 21	4 02	32 87	33 36
Frontenac	12 01	12 31	4 35	4 33	1 27	1 24	2 53	2 49	20 16	20 37
Leeds and Grenville	25 18	24 95	8 91	9 10	2 13	2 18	4 82	4 70	41 04	40 93
Dundas	33 18	33 45	11 39	11 08	3 21	2 98	5 82	5 73	53 60	53 24
Stormont	23 51	24 15	9 44	8 82	2 31	2 22	5 19	4 40	40 45	39 59
Glengarry	23 05	23 83	9 17	8 91	2 47	2 61	5 00	5 17	39 69	40 52
Prescott	22 99	23 88	8 40	7 73	2 35	2 20	4 45	4 34	38 19	38 15
Russell	17 03	16 94	4 98	4 90	1 63	1 69	3 38	4 03	27 02	27 56
Carleton	32 89	33 23	8 67	8 57	2 60	2 50	4 95	5 09	49 11	49 39
Renfrew	8 47	8 52	3 36	3 07	1 05	1 05	2 61	2 66	15 49	15 30
Lanark	12 58	13 38	4 94	4 99	1 34	1 35	3 50	3 53	22 36	23 25
Group	18 99	19 39	6 69	6 54	1 83	1 80	3 93	3 91	31 44	31 64
Victoria	19 15	19 97	5 84	5 76	1 69	1 72	4 30	4 62	30 98	32 07
Peterborough	18 32	19 16	5 68	5 67	1 50	1 49	3 42	3 50	28 92	29 82
Haliburton	2 00	1 90	59	52	19	17	57	50	3 35	3 09
Hastings	14 23	15 35	4 88	5 03	1 35	1 43	3 09	3 09	23 55	24 90
Group	13 57	14 29	4 35	4 37	1 21	1 24	2 89	2 96	22 02	22 86
Muskoka	3 67	3 82	1 33	1 24	43	41	1 20	1 16	6 63	6 63
Parry Sound	3 67	3 29	1 07	89	39	31	1 03	99	6 16	5 48
Nipissing	2 71	2 40	69	63	26	19	70	70	4 36	3 92
Algoma	2 71	2 77	71	73	25	27	85	87	4 52	4 64
Group	3 20	3 15	96	89	34	31	97	96	5 47	5 31
The Province	26 25	26 91	8 72	8 55	2 24	2 23	5 05	5 13	42 26	42 82

VALUES—LIVE STOCK

TABLE IV. Showing by County Municipalities and groups of Counties the value of Horses for 1892 and 1893, Milch Cows and other Cattle for 1893, and the total Cattle for 1892 and 1893.

Counties.	Horses.		Cattle.			
			Milch Cows.	Other Cattle.	Total.	
	1893.	1892.			1893.	1892
	$	$	$	$	$	$
Essex	1,159,005	1,413,434	398,476	344,767	743,243	713,124
Kent	1,694,509	1,875,233	514,479	666,285	1,180,764	1,074,217
Elgin	1,273,212	1,465,739	602,482	628,102	1,230,584	1,301,796
Norfolk	1,143,178	1,231,086	434,324	248,977	683,301	642,775
Haldimand	811,487	967,272	363,924	275,042	638,966	609,636
Welland	760,760	829,320	283,072	213,299	496,371	440,169
Totals	6,842,151	7,782,084	2,596,757	2,376,472	4,973,229	4,781,717
Lambton	1,330,225	1,539,772	568,517	860,788	1,429,305	1,551,100
Huron	2,549,844	2,840,014	1,033,922	1,873,732	2,907,654	2,728,564
Bruce	1,656,729	1,862,288	795,750	1,438,570	2,234,320	2,102,995
Totals	5,536,798	6,242,074	2,398,189	4,173,090	6,571,279	6,382,659
Grey	2,317,359	2,496,479	1,062,210	1,339,238	2,401,448	2,361,917
Simcoe	2,203,757	2,413,572	835,472	874,654	1,710,126	1,685,433
Totals	4,521,116	4,910,051	1,897,682	2,213,892	4,111,574	4,047,350
Middlesex	2,376,116	2,744,645	1,180,265	1,562,180	2,742,445	2,815,797
Oxford	1,540,443	1,648,801	1,182,599	877,188	2,059,787	1,911,968
Brant	767,260	839,913	383,093	220,052	603,145	577,072
Perth	1,712,704	1,923,410	955,926	936,319	1,892,245	1,836,145
Wellington	1,797,722	1,959,609	943,530	1,045,260	1,988,790	1,811,396
Waterloo	1,009,737	1,097,721	468,287	428,931	897,218	827,969
Dufferin	722,755	837,312	306,612	378,504	685,116	716,133
Totals	9,926,737	11,051,411	5,420,312	5,448,434	10,868,746	10,496,480
Lincoln	784,267	866,953	263,713	150,816	414,529	402,770
Wentworth	1,059,216	1,155,313	439,500	283,093	722,593	728,472
Halton	732,960	790,363	388,876	328,921	717,797	661,003
Peel	1,136,066	1,214,693	476,170	317,910	794,080	757,661
York	2,208,847	2,496,208	748,986	428,400	1,177,386	1,075,889
Ontario	1,724,088	1,858,215	757,982	840,129	1,598,111	1,371,964
Durham	1,336,276	1,400,494	425,479	391,929	817,408	795,519
Northumberland	1,237,867	1,365,157	629,534	412,354	1,041,888	996,251
Prince Edward	832,131	900,361	276,851	125,253	402,104	419,825
Totals	11,051,718	12,047,757	4,407,091	3,278,805	7,685,896	7,209,354
Lennox and Addington	792,496	781,899	470,645	338,734	809,379	755,157
Frontenac	653,776	719,629	521,932	297,272	819,254	741,970
Leeds and Grenville	1,250,771	1,352,262	1,419,869	434,769	1,854,638	1,697,190
Dundas	574,444	686,982	479,355	154,662	634,017	530,245
Stormont	515,976	512,043	535,314	114,414	649,728	453,121
Glengarry	606,025	683,354	467,640	179,462	647,102	632,669
Prescott	541,063	563,203	415,333	139,784	555,117	530,799
Russell	363,937	439,599	230,828	114,748	345,576	454,197
Carleton	1,175,819	1,335,005	706,867	491,711	1,198,578	1,169,377
Renfrew	1,009,630	1,162,413	494,468	458,181	952,649	854,581
Lanark	815,572	903,301	681,442	459,813	1,141,255	1,053,178
Totals	8,299,509	9,139,690	6,425,743	3,183,550	9,607,293	8,872,484
Victoria	1,209,191	1,392,194	394,828	516,423	911,251	914,636
Peterborough	828,492	926,143	466,483	311,244	777,727	720,999
Haliburton	124,911	108,916	67,114	81,140	148,254	126,901
Hastings	1,361,993	1,374,430	989,751	318,632	1,308,383	1,262,236
Totals	3,524,587	3,801,683	1,918,176	1,227,439	3,145,615	3,024,772
Muskoka	282,333	279,204	120,581	125,038	245,619	232,043
Parry Sound	197,580	199,053	95,766	113,682	209 448	211,141
Nipissing	83,266	90,082	21,741	17,150	38,891	38,208
Algoma	261,677	269,831	120,347	140,088	260,435	252,267
Totals	824,856	838,170	358,435	395,958	754,393	733,659
The Province	50,527,472	55,812,920	25,420,385	22,297,640	47,718,025	45,548,475

VALUES—LIVE STOCK.

TABLE V. Showing by County Municipalities and groups of Counties the value of Sheep, Hogs and Poultry for the years 1892 and 1893.

Counties.	Sheep.		Hogs.		Poultry.	
	1893.	1892.	1893.	1892.	1893.	1892.
	$	$	$	$	$	$
Essex	109,900	113,864	267,514	204,398	59,503	54,376
Kent	196,171	167,120	290,393	242,608	53,481	49,145
Elgin	253,029	227,436	238,231	192,188	47,392	43,639
Norfolk	157,556	164,084	160,320	153,150	33,712	30,654
Haldimand	134,785	134,717	98,296	90,149	33,521	37,900
Welland	119,816	107,146	55,209	52,028	40,337	29,701
Totals	971,257	914,367	1,109,963	934,521	267,946	245,415
Lambton	302,766	281,846	156,032	124,368	53,809	50,313
Huron	570,035	599,009	245,812	213,890	93,419	88,613
Bruce	551,860	541,963	205,183	173,992	66,573	64,135
Totals	1,424,661	1,422,818	607,027	512,250	213,801	203,061
Grey	675,510	658,066	293,121	217,396	88,909	90,534
Simcoe	426,756	401,973	335,005	265,245	105,736	93,212
Totals	1,102,266	1,060,039	628,126	482,641	194,645	183,746
Middlesex	409,813	391,797	295,336	239,934	118,440	104,325
Oxford	161,657	145,605	266,357	213,089	54,248	53,531
Brant	129,157	99,970	115,105	107,127	29,030	27,178
Perth	283,906	273,111	237,376	182,740	74,525	66,307
Wellington	472,995	435,856	253,872	205,450	67,058	64,209
Waterloo	166,715	187,796	116,919	94,320	45,015	42,631
Dufferin	149,491	157,176	109,633	96,908	34,424	33,785
Totals	1,773,734	1,691,311	1,394,598	1,139,568	422,740	391,966
Lincoln	105,803	104,801	76,487	67,301	29,250	27,317
Wentworth	141,348	123,086	116,090	93,244	38,921	34,733
Halton	119,351	100,217	91,361	60,380	35,834	37,909
Peel	197,675	141,333	129,836	109,236	60,556	49,244
York	261,235	256,906	225,236	200,505	84,453	84,583
Ontario	300,647	271,223	218,635	159,715	65,330	59,403
Durham	192,802	179,368	126,064	114,583	64,498	56,861
Northumberland	166,865	145,224	150,286	143,651	51,976	52,568
Prince Edward	58,408	50,282	71,229	63,912	27,139	25,825
Totals	1,544,134	1,372,440	1,205,224	1,012,527	457,957	428,443
Lennox and Addington	90,634	99,510	81,708	60,237	27,668	31,139
Frontenac	118,045	114,328	82,563	75,840	33,232	41,756
Leeds and Grenville	198,838	186,575	216,709	190,766	72,013	67,492
Dundas	45,219	44,707	85,357	67,274	36,588	32,499
Stormont	60,068	60,524	54,514	52,129	22,782	23,876
Glengarry	102,705	79,103	68,841	61,168	25,310	30,908
Prescott	72,089	61,313	83,007	63,845	30,929	28,667
Russell	64,557	61,716	58,837	40,578	24,403	23,368
Carleton	197,779	170,188	144,725	118,752	75,270	76,155
Renfrew	259,930	237,314	154,036	114,800	43,986	46,124
Lanark	231,158	250,272	103,597	89,306	57,077	64,245
Totals	1,441,022	1,365,550	1,133,894	934,195	449,258	466,229
Victoria	224,007	254,672	120,834	93,480	46,078	39,688
Peterborough	138,409	123,303	101,855	94,552	38,424	38,327
Haliburton	31,319	26,896	13,729	13,331	4,464	4,408
Hastings	178,167	164,034	204,596	175,046	55,549	54,498
Totals	571,902	568,905	441,014	376,409	144,515	136,921
Muskoka	59,589	52,934	27,545	24,296	12,679	12,577
Parry Sound	47,197	45,492	26,673	24,175	9,179	7,818
Nipissing	4,321	4,109	8,318	6,351	3,517	3,103
Algoma	76,035	71,592	39,747	32,160	10,921	12,171
Totals	187,142	174,127	102,283	86,982	36,296	35,669
The Province	9,016,118	8,569,557	6,622,129	5,479,093	2,187,158	2,091,450

VALUES OF LIVE STOCK SOLD IN YEAR.

TABLE VI. Showing by County Municipalities and groups of Counties the value of Live Stock sold or killed for the years ending June 30th, 1892 and 1893.

Counties.	Horses.	Cattle.	Sheep.	Hogs.	Poultry.	Total.	
						1893.	1892.
	$	$	$	$	$	$	$
Essex	121,218	235,622	38,456	380,702	29,259	805,257	734,140
Kent	107,184	466,020	62,076	462,132	20,925	1,118,337	1,023,684
Elgin	139,608	405,009	93,927	374,999	20,607	1,034,150	1,040,910
Norfolk	81,420	187,930	51,327	261,012	12,686	594,375	543,905
Haldimand	65,448	138,951	49,159	171,723	14,436	439,717	412,693
Welland	58,696	181,312	51,636	117,170	15,910	424,724	360,714
Totals	573,574	1,614,844	346,581	1,767,738	113,823	4,416,560	4,116,046
Lambton	98,118	586,724	84,685	218,736	19,891	1,008,154	1,056,097
Huron	366,720	1,386,352	183,665	447,624	26,529	2,410,890	2,525,154
Bruce	162,680	1,066,754	188,718	323,468	19,359	1,760,979	1,527,463
Totals	627,518	3,039,830	457,068	989,828	65,779	5,180,023	5,108,714
Grey	139,040	940,679	181,359	431,780	26,155	1,719,013	1,473,054
Simcoe	164,182	582,720	138,111	403,910	27,609	1,316,532	1,266,748
Totals	303,222	1,523,399	319,470	835,690	53,764	3,035,545	2,739,802
Middlesex	195,075	1,218,438	133,916	501,991	37,706	2,087,126	2,121,951
Oxford	101,007	787,223	60,248	491,139	16,223	1,455,840	1,454,909
Brant	49,755	225,876	42,017	206,190	13,441	537,279	661,202
Perth	123,152	799,158	97,843	377,971	17,770	1,415,894	1,388,224
Wellington	147,560	1,004,508	167,422	564,081	20,485	1,904,056	1,660,756
Waterloo	71,179	583,369	76,540	250,856	12,496	994,440	1,007,054
Dufferin	57,798	278,582	31,859	157,404	11,402	537,045	458,190
Totals	745,526	4,897,154	609,845	2,549,632	129,523	8,931,680	8,752,286
Lincoln	46,136	156,245	31,542	119,237	10,678	363,838	346,802
Wentworth	68,482	210,864	58,965	205,932	14,414	558,657	485,331
Halton	50,932	269,678	33,508	136,778	15,821	506,717	425,641
Peel	67,907	302,603	36,642	198,153	22,289	627,594	602,106
York	182,273	564,901	100,408	446,182	34,584	1,328,348	1,285,344
Ontario	190,236	667,972	78,807	366,995	31,678	1,335,688	1,165,907
Durham	101,270	344,071	55,135	205,468	22,171	728,115	585,319
Northumberland	88,352	289,729	41,225	226,264	16,805	662,375	591,011
Prince Edward	34,720	79,973	16,813	104,490	9,841	245,837	198,915
Totals	830,308	2,886,036	453,045	2,009,499	178,281	6,357,169	5,686,376
Lennox and Addington	33,969	188,479	24,929	116,930	10,956	375,263	287,234
Frontenac	28,490	190,269	35,071	88,766	17,847	360,443	365,706
Leeds and Grenville	73,440	289,853	68,807	264,473	22,587	719,160	610,035
Dundas	78,848	102,213	23,194	95,441	11,723	311,419	259,554
Stormont	38,622	84,013	12,990	75,436	6,272	217,333	170,698
Glengarry	56,210	84,337	18,965	79,225	6,271	245,008	255,557
Prescott	41,140	49,875	15,593	70,604	11,470	188,682	203,183
Russell	24,080	78,623	18,626	54,336	5,316	180,981	182,143
Carleton	82,216	274,878	58,350	165,416	23,370	604,230	559,867
Renfrew	62,834	247,987	59,788	154,127	14,234	538,970	484,555
Lanark	73,071	240,641	69,080	160,290	16,534	559,616	555,356
Totals	592,920	1,831,168	405,393	1,325,044	146,580	4,301,105	3,933,888
Victoria	91,176	253,725	64,580	187,327	17,103	613,911	589,730
Peterborough	49,344	218,712	36,458	175,164	13,411	493,089	416,998
Haliburton	8,370	23,783	9,152	18,717	1,707	61,729	65,980
Hastings	114,675	188,501	39,600	298,197	20,450	661,423	601,588
Totals	263,565	684,721	149,790	679,405	52,671	1,830,152	1,674,296
Muskoka	28,967	57,832	15,192	40,299	4,706	146,996	126,308
Parry Sound	16,019	60,750	12,969	38,384	2,073	130,195	130,800
Nipissing	2,808	12,955	1,337	10,410	959	28,469	22,791
Algoma	20,097	62,332	13,598	50,899	5,536	152,462	162,310
Totals	67,891	193,869	43,096	139,992	13,274	458,122	442,209
The Province	4,004,524	16,671,021	2,784,288	10,296,828	753,695	34,510,356	32,453,617

VALUES—LIVE STOCK PER HEAD.

TABLE VII. Showing by County Municipalities and groups of Counties the value per head of the several classes of Horses and Cattle in the Province for the year 1893, and also the value per head of all horses and cattle sold for the same period.

Counties.	Horses.					Cattle.				
	Working horses.	Breeding mares.	Colts.	Stallions	Horses sold in year.	Working oxen.	Milch cows.	Store cattle.	Other cattle.	Cattle sold in year.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Essex	73 00	76 00	43 00	200 00	89 00	39 00	29 41	22 94	12 45	28 78
Kent	77 00	81 00	52 00	350 00	88 00	40 00	32 99	26 55	15 08	33 33
Elgin	80 00	76 00	56 00	233 00	84 00	56 00	34 23	29 41	13 95	32 38
Norfolk	81 00	77 00	53 00	625 00	69 00	57 00	29 51	19 66	10 72	25 60
Haldimand	74 00	79 00	49 00	300 00	81 00	57 00	29 65	24 87	13 23	26 67
Welland	88 00	71 00	52 00	250 00	88 00	38 00	33 24	28 81	14 45	33 25
Group	78 00	77 00	51 00	324 00	83 00	49 00	31 70	25 96	13 46	30 65
Lambton	78 00	70 00	51 00	387 00	79 00	50 00	32 42	28 76	13 44	31 48
Huron	86 00	91 00	56 00	330 00	96 00	68 00	35 32	37 00	15 30	44 54
Bruce	82 00	84 00	49 00	300 00	70 00	47 00	31 83	34 03	13 21	42 99
Group	83 00	84 00	53 00	347 00	85 00	52 00	33 40	34.06	14 13	40 76
Grey	84 00	81 00	49 00	360 00	79 00	59 00	30 88	25 57	12 74	38 45
Simcoe	83 00	87 00	54 00	150 00	94 00	56 00	31 97	22 93	12 93	32 23
Group	84 00	84 00	52 00	322 00	84 00	58 00	31 35	24 47	12 82	35 86
Middlesex	79 00	83 00	55 00	300 00	85 00	53 00	34 85	33 46	14 20	38 30
Oxford	77 00	86 00	55 00	433 00	81 00	62 00	35 35	34 32	13 43	43 02
Brant	79 00	66 00	54 00	400 00	93 00	45 00	34 08	27 15	12 80	37 69
Perth	82 00	81 00	54 00	453 00	86 00	50 00	34 87	27 77	13 65	40 93
Wellington	77 00	82 00	53 00	267 00	85 00	57 00	38 87	28 31	15 63	47 16
Waterloo	76 00	89 00	49 00	750 00	79 00	60 00	35 66	37 79	14 27	42 92
Dufferin	70 00	87 00	44 00	350 00	78 00	50 00	29 89	20 98	11 85	32 84
Group	78 00	83 00	53 00	381 00	84 00	55 00	35 28	30 56	13 97	41 15
Lincoln	83 00	74 00	58 00	550 00	79 00	52 00	34 54	23 80	12 42	37 21
Wentworth	85 00	94 00	62 00	360 00	97 00	60 00	33 23	28 20	16 00	34 41
Halton	87 00	87 00	64 00	400 00	107 00	73 00	38 81	33 14	15 87	43 85
Peel	86 00	97 00	66 00	300 00	89 00	75 00	37 63	29 81	16 12	38 93
York	87 00	94 00	60 00	333 00	91 00	50 00	38 28	27 36	15 94	37 52
Ontario	81 00	100 00	61 00	233 00	83 00	50 00	43 41	30 56	21 44	46 78
Durham	82 00	90 00	56 00	500 00	95 00	50 00	33 72	25 15	14 12	42 29
Northumberland	76 00	73 00	47 00	300 00	88 00	40 00	29 21	22 28	12 86	30 03
Prince Edward	72 00	79 00	46 00	200 00	80 00	50 00	23 46	22 10	10 07	25 22
Group	82 00	90 00	57 00	353 00	89 00	54 00	34 83	27 34	15 78	38 72
Lennox and Addington	75 00	87 00	46 00	650 00	67 00	30 00	29 85	19 33	12 91	31 34
Frontenac	70 00	66 00	42 00	417 00	74 00	44 00	29 31	23 51	11 28	29 79
Leeds and Grenville	72 00	61 00	47 00	200 00	80 00	30 00	28 46	21 70	10 91	27 43
Dundas	70 00	65 00	47 00	350 00	77 00	30 00	27 25	23 48	10 25	32 94
Stormont	76 00	83 00	43 00	.....	82 00	33 00	33 93	12 71	12 50	28 45
Glengarry	68 00	80 00	41 00	250 00	77 00	.....	25 49	20 38	11 77	20 58
Prescott	70 00	77 00	40 00	250 00	68 00	33 00	27 21	16 23	9 47	21 00
Russell	72 00	85 00	48 00	225 00	70 00	33 00	28 66	20 05	11 02	27 93
Carleton	85 00	91 00	49 00	300 00	86 00	.....	28 37	23 12	14 77	31 13
Renfrew	88 00	79 00	52 00	233 00	89 00	.....	26 57	21 71	12 05	31 72
Lanark	75 00	71 00	45 00	.....	69 00	30 00	28 41	22 97	12 52	27 33
Group	75 00	77 00	46 00	308 00	77 00	32 00	28 42	21 41	12 01	28 72
Victoria	80 00	75 00	48 00	700 00	87 00	50 00	28 20	21 28	12 46	27 51
Peterborough	75 00	81 00	48 00	550 00	96 00	40 00	28 58	21 51	11 53	29 15
Haliburton	85 00	86 00	44 00	300 00	62 00	41 00	25 48	20 00	11 11	18 10
Hastings	83 00	82 00	54 00	200 00	75 00	37 00	26 43	15 78	8 97	21 13
Group	80 00	79 00	50 00	487 00	82 00	39 00	27 24	19 83	10 94	25 40
Muskoka	92 00	95 00	47 00	575 00	83 00	44 00	27 88	19 95	9 93	23 77
Parry Sound	92 00	102 00	57 00	187 00	83 00	45 00	26 08	20 45	8 69	26 31
Nipissing	83 00	90 00	48 00	250 00	54 00	45 00	25 76	18 08	8 93	29 85
Algoma	103 00	99 00	54 00	400 00	77 00	48 00	30 74	22 36	11 83	26 96
Group	94 00	97 00	52 00	409 00	79 00	46 00	28 10	20 69	10 16	25 89
The Province	80 00	83 00	52 00	356 00	84 00	47 00	31 63	27 45	13 40	36 12

VALUE—LIVE STOCK PER HEAD.

TABLE VIII. Showing by County Municipalities and groups of Counties the value per head of Sheep, Hogs and Poultry in the Province for the year 1893, and also the value of each per head sold for the same period.

Counties.	Sheep.			Hogs.			Poultry.			
	Over 1 year.	Under 1 year.	Sold in year.	Over 1 year.	Under 1 year.	Sold in year.	Turkeys.	Geese.	Other fowls.	Sold in year.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Essex	4 41	2 77	3 73	9 44	4 18	10 53	50	52	25	36
Kent	6 32	3 54	4 37	12 88	4 64	10 75	40	47	26	36
Elgin	5 75	3 55	4 40	14 81	4 80	10 27	58	54	23	33
Norfolk	5 33	3 28	4 69	12 33	4 20	9 26	48	58	22	29
Haldimand	5 42	3 54	4 34	14 15	4 44	10 85	49	60	24	32
Welland	5 87	3 66	4 48	11 12	4 70	11 19	95	72	32	41
Group	5 57	3 40	4 35	12 14	4 47	10 39	54	55	25	35
Lambton	5 89	4 01	4 64	15 98	4 51	11 76	68	56	23	41
Huron	5 94	4 03	5 12	14 65	4 97	10 66	61	52	22	35
Bruce	5 79	3 78	5 12	13 32	4 54	10 90	67	51	24	36
Group	5 87	3 93	5 02	14 43	4 70	10 97	65	52	23	37
Grey	5 43	3 69	4 15	14 02	5 03	10 58	61	50	23	37
Simcoe	5 67	3 28	4 96	13 51	4 34	9 16	70	62	28	32
Group	5 52	3 53	4 47	13 74	4 64	9 84	66	56	25	34
Middlesex	6 00	4 17	4 78	14 96	5 32	10 37	76	64	27	35
Oxford	6 59	4 31	5 44	16 53	5 29	10 44	59	57	24	34
Brant	7 53	4 74	5 32	16 18	4 24	9 85	62	55	26	37
Perth	5 82	3 80	4 90	14 99	4 81	11 58	92	61	23	39
Wellington	6 38	3 93	6 02	17 94	4 57	10 84	57	57	23	41
Waterloo	4 78	3 60	5 13	17 29	5 38	11 37	71	62	24	34
Dufferin	5 19	3 25	3 94	14 17	3 83	8 64	71	54	22	43
Group	5 98	3 95	5 18	15 90	4 87	10 56	71	59	24	37
Lincoln	5 64	3 67	4 06	15 33	5 51	10 65	68	75	26	33
Wentworth	6 22	3 55	5 38	17 41	4 90	10 31	61	69	29	39
Halton	7 02	3 89	4 94	20 44	4 98	10 89	79	71	28	40
Peel	9 54	4 50	4 10	16 14	4 21	9 78	71	58	31	35
York	7 03	3 70	5 66	15 49	4 13	9 57	75	66	26	40
Ontario	8 06	3 84	5 13	15 05	4 94	9 98	79	63	24	46
Durham	5 79	3 48	4 85	12 52	4 28	10 35	91	61	26	44
Northumberland	5 75	3 78	4 19	14 23	3 95	10 15	52	63	24	37
Prince Edward	4 57	3 28	3 42	14 76	4 66	11 11	80	60	23	38
Group	6 81	3 75	4 84	15 28	4 51	10 10	74	64	26	40
Lennox and Addington	4 37	2 94	3 21	15 83	6 14	12 81	71	47	24	34
Frontenac	4 55	3 11	3 82	12 90	4 43	10 11	73	68	22	39
Leeds and Grenville	4 52	3 10	3 53	13 85	3 73	11 91	79	48	22	36
Dundas	4 08	2 93	4 05	14 77	4 25	10 76	62	51	25	42
Stormont	4 33	3 15	3 36	10 65	5 28	14 87	68	62	23	38
Glengarry	6 25	3 68	3 13	11 84	4 73	11 86	66	52	23	27
Prescott	4 55	2 85	3 26	13 04	3 45	12 23	86	70	28	40
Russell	5 09	3 54	4 51	15 00	4 20	11 49	73	78	29	32
Carleton	5 28	3 15	3 99	14 67	3 86	11 77	72	49	27	40
Renfrew	4 27	3 03	3 59	12 68	4 16	12 06	62	55	26	40
Lanark	4 11	2 89	3 62	12 88	3 50	11 78	81	58	25	41
Group	4 58	3 08	3 64	13 46	4 13	11 86	73	55	25	38
Victoria	5 13	3 02	3 60	13 64	3 30	10 74	84	65	23	37
Peterborough	5 10	3 17	4 12	11 90	3 40	11 08	61	56	21	41
Haliburton	4 99	2 76	3 96	11 04	2 39	9 34	62	50	21	35
Hastings	4 72	3 02	3 53	13 72	3 96	10 20	81	51	27	43
Group	4 99	3 04	3 72	13 12	3 55	10 54	74	57	24	40
Muskoka	5 15	3 10	4 05	11 89	4 49	9 87	58	67	25	41
Parry Sound	4 85	2 95	4 31	13 09	3 85	9 72	71	92	25	30
Nipissing	5 00	3 00	4 50	9 43	3 54	16 04	61	65	37	37
Algoma	4 98	3 16	3 52	12 13	3 93	10 36	62	68	21	41
Group	5 00	3 08	3 95	11 98	4 02	10 30	62	72	25	38
The Province	5 62	3 56	4 52	13 97	4 48	10 56	69	58	25	37

MARKET

TABLE IX. Showing the average price of Agricultural Products at the leading markets of

Products.	Barrie.	Belleville.	Brampton.	Brantford.	Brockville.	Chatham.	Cobourg.	Essex.	Goderich.	Guelph.	Hamilton.	Kingston.	Lindsay.	London.	Orangeville.
	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
FALL WHEAT: per bush.															
July	56.5	62.0	56.8	60.9	79.0	57.5	....	59.7	60.0	61.8	63.0	66.8	62.0	63.5	60.0
August	55.0	57.5	56.6	56.2	79.0	57.0	....	55.0	60.0	59.6	59.7	65.9	60.8	60 5	59.2
September	55.0	57.5	57.3	57.2	79.0	58.0	....	53.0	60.0	58.3	60.3	61.3	58.2	60.0	55.8
October	57.0	57.5	56.1	56.8	79.0	55.0	60.5	53.0	58.0	57.3	58.5	63.3	59.0	60.5	56.1
November	56.0	57.0	56.0	55.9	76.1	56.8	60.0	51.0	56.0	57.0	58.0	63.4	59.0	60.1	55.0
December	54.5	56.3	56.0	55.0	63.0	54.4	....	51.0	56.0	57.3	56.5	65.0	58.0	58.3	55.0
Average	55.7	58.2	56.4	57.1	75.9	56.5	60.3	53.3	58.4	59.0	59.6	64.4	59.3	60.5	57.0
SPRING WHEAT: per bush.															
July	....	60.0	55.1	60.9	79.0	.....	....	....	59.0	57.5	61.0	68.2	60.0	63.5	55.0
August	....	57.5	55.0	56.2	79.0	53.0	....	....	59.0	55.5	57.3	67.5	59.2	60.5	54.0
September	57.5	57.5	54.2	55.7	79.0	... .	....	....	59.0	54.5	58.5	61.3	56.6	60.0	52.1
October	55.0	57.5	54.1	56.8	79.0	.....	59.0	....	57.5	53.7	57.2	66.7	58.0	60.5	53.3
November	52.5	57.5	53.5	55.9	75.9	53.3	60.0	....	55.4	54.5	56.4	66.0	59.0	60.1	52.8
December	55.5	57.5	53.5	55.0	63.5	52.3	....	....	55.0	53.5	55.3	65.0	58.0	58.3	53.5
Average	54.4	58.0	54.3	56.0	75.9	52.9	59 5	....	57.6	55.0	57.8	66.1	58.3	60.5	53.5
BARLEY: per bush.															
July	31.5	38.0	32.3	41.0	47.5	34.8	....	....	37.5	38.1	41.5	40.3	35.0	44.3	34.0
August	31.5	38.0	31.8	40.3	47.5	34.2	....	....	37.5	39.6	42.4	41.3	35.0	44.3	35.4
September	34.1	38.0	31.5	41.3	47.5	33.6	....	....	37.5	40.7	41.5	37.5	35.0	43.6	33.8
October	34.0	38.0	38.0	38.8	47.5	33.6	40.0	....	37.5	42.2	44.4	37.7	36.4	39.3	33.5
November	33.0	38.0	38.0	39.0	46.4	35.1	37.5	....	37.5	41.0	43.5	38.1	35.2	39.5	33.5
December	33.0	38.0	40.0	38.8	42.0	33.9	....	....	37.5	40.2	42.5	37.5	36.0	39.8	34.8
Average	32.8	38.0	35.2	40.0	46.4	34.1	38.8	....	37.5	40.2	42.5	38.9	35.5	42.2	34.2
OATS: per bush.															
July	33.5	34.0	33.6	39.1	39.9	38.5	....	40.0	33.5	37.4	42.1	37.2	35.0	39.3	34.0
August	33.2	38.0	33.0	34.8	42.5	31.2	....	31.3	30.8	36.0	40.0	36.1	33.3	36.6	32.0
September	29.0	38.0	31.7	32.0	41.3	27.9	....	27.2	30.9	32.8	34.5	31.5	29.2	31.5	27.4
October	28.5	38.0	29.0	31.8	37.5	29.0	32.5	26.0	31.5	29.7	33.9	31.0	29.3	29.8	26.8
November	28.0	38.0	29.0	31.9	37.0	29.5	32.5	25.0	30.3	30.1	34.5	31.4	30.0	31.0	27.8
December	28.0	38.0	29.0	32.5	35.0	28.8	....	25.8	29.5	30.3	33.8	32.2	29.8	31.3	28.5
Average	30.1	37.2	30.9	34.0	38.8	30.8	32.5	28.5	31.1	33.1	37.3	33 4	30.8	33.8	29.5
RYE: per bush:															
July	....	....	....	....	57.5	.....	....	....	....	....	....	....	42.0	64.5	....
August	....	....	....	....	57.5	.....	....	....	....	....	....	....	42.0	64.1	....
September	....	....	....	....	57.5	... ..	....	....	....	....	....	52.5	38.0	60.3	....
October	39 0	....	....	....	57.5	.....	40.0	....	....	....	....	....	49.2	39.0	56.0	....
November	39.0	....	....	....	56.0	... .	40.0	....	....	....	....	46.3	40.0	53.3	....
December	39.0	....	....	....	50.0	.....	....	....	....	....	....	48.3	38.0	53.3	....
Average	39.0	....	....	....	56.0	.....	40.0	....	....	....	....	48.5	39.5	59.1	....
PEAS: per bush.															
July	55.5	56.0	54.0	56.1	57 5	60.6	....	....	56.5	57.3	56.0	59.3	52.5	57.0	52.5
August	51.5	56.0	53.4	54.4	57.5	.....	....	....	53.8	56.3	54.6	60.0	52.5	56.7	51.5
September	51.8	56.0	51.0	51.3	57.5	52 5	....	....	52.0	51.7	51.8	57.5	51.9	55.5	50.0
October	52.3	56.0	51.0	51.3	57.5	.....	55.3	....	51.3	52.0	51.0	55.0	52.8	56.0	50.0
November	51.0	56.0	51.0	50.9	57.4	.....	54.0	....	50.5	51.6	51.1	55.0	52.0	54 6	50.0
December	51.0	56.0	51.0	50.8	57.0	50.0	....	....	50.5	51.7	51.0	57.3	50.0	55.0	49.0
Average	52.1	56.0	52.0	52.9	57.4	55.8	54.6	....	52.5	53.8	53.0	57.4	51.9	55.8	50.6

PRICES.

Ontario for July-December, 1893, and the average for the half year and for the Province.

Ottawa.	Owen Sound.	Pembroke.	Perth.	Peterborough.	St. Catharines.	St. Thomas.	Simcoe.	Stratford.	Toronto.	Walkerton.	Waterloo.	Whitby.	Wood-stock.	The Province.	
														1893.	1892.
cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
64.4	64.5	69.0	72.5	64.1	62.8	62.0	61.4	60 0	63.8	60.5	64.0	62.5	61.0	63.0	77.5
61.0	61.0	62.5	72.5	61.0	58.4	58.4	58.2	60.0	62.2	57.5	58.8	60.0	59.5	60.4	76.2
61.3	60.6	62.5	72 5	59.5	58.0	57.8	58.6	60.0	63.6	56.3	57.0	58.8	59.0	60.0	71.6
59.0	61.6	62.5	63.1	61.0	57.3	57.3	59.0	59.0	61.5	56.5	57.0	56.9	66.5	59.5	67.7
60.5	61.3	62.5	60.0	60.6	57.0	56.4	55.0	56.2	59.8	56.5	57.5	56.5	62.8	58.6	67.0
61.7	60.0	62.5	60.0	58.7	58.0	56.0	54.0	55.0	59.3	56.5	56.0	56.5	59.8	57.6	64.9
61.5	61.4	63.3	66.0	61.0	58.7	57.8	57.9	58.2	61.6	57.1	58.7	58.6	61.5	59.9	70.7
61.8	61.5	69.0	72.5	62.0	62.8	....	61.4	60.0	61.1	60.5	64.0	59.5	.....	62.1	74.5
60 8	59.0	62.5	72.5	59.5	59.0	.....	58.2	60.0	60.3	56.4	58.8	59.0	.....	59.9	73.2
60.3	57.5	62.5	72.5	58.0	58.0	.....	58.6	60.0	60.5	53.4	57.0	58.5	.....	59.4	69.6
60.0	59.0	62.5	63.1	59.0	57.8	.....	59.0	59.0	60.1	54.0	57.0	56.8	.....	59.1	64.4
57.5	59.0	62.5	60.0	59.3	57.3	.....	55.0	56.2	60.0	54.0	57.3	56.5	.....	58.0	63.5
61 5	58.5	62.5	60.0	58.7	59.0	.....	54.0	55.0	60.0	54.0	56.0	56.5	.....	57 6	62.0
60.3	59.0	63.3	66.0	59.5	59.3	.....	57.9	58.2	60.4	55.1	58.6	57.8	.....	59.4	67.8
53.8	41.5	40.0	45.0	38.1	50.0	50.0	40.0	37.5	40.0	37.5	40.0	35.0	36.8	40.2	41.2
58.5	39.8	40.0	45.0	37.5	46.0	49.0	41.8	37.5	39.6	37.5	40.0	38.0	38.5	40.5	41.9
50.8	39.0	40.0	45.0	38.3	48.3	47.5	49.0	37.5	39.8	37.5	40.0	35.0	45.0	39.9	41.2
46.3	40.3	40.0	45.0	37.8	48.8	47.5	49.0	37.5	43.1	37.5	40.0	35.0	38.5	40.0	41.0
43.8	40.0	37.0	45.0	38.3	47.5	47.5	49.0	36.2	41.2	37.5	42.5	34.4	38.5	39.9	41.8
45.0	40.0	35.0	45.0	37.0	44.2	47.5	49.0	36.1	46.2	37.5	45.0	35.0	38.5	40.1	40.7
50.6	40.1	38.5	45.0	37.9	47.4	48.1	46.0	37.0	41.5	37.5	40.9	35.5	39.0	40.1	41.3
42.0	34.5	29.5	32.0	36.6	41.0	39.0	36.4	35.6	42.9	32.0	38.0	35.4	30.5	37.2	31.7
39.3	33.8	32.0	32.0	35.1	38.7	39.0	34.1	35.5	38.8	32.1	39.5	34.4	33.3	35.6	32.7
42.0	30.3	32.0	32.0	30.2	35.8	37.0	30.4	29.0	34.3	29.6	40.0	30.2	31.5	32.5	31.0
36.0	28.4	32.0	30.0	30.2	34.5	35.0	29.0	29.0	33.7	29.3	40.0	27.9	31.9	31.1	29.7
36.6	28.8	29.0	30.0	30.8	35.0	33.0	30.6	29.0	33.9	28.1	37.5	29.0	39.5	31.4	30.6
37.0	29.4	29.0	30.0	30.3	34.7	34.3	31.0	29.0	34.1	28.5	35.0	29.0	36.4	31.0	29.1
39.0	30.7	30.6	30.9	32.5	37.0	36.1	32.0	31.6	36.3	29.9	38.6	31.1	34.0	33.2	30.8
....	....	40.0	50.0	.....	.....	.....	49.0	.....	50.0	.....	50.0	52.5	.....	50.8	62.3
....	....	40.0	50.0	.....	.....	.....	47.1	.....	50.0	.....	52.5	52.5	.....	51.1	60.7
....	....	40.0	50.0	.....	.....	.....	47.5	.....	50.0	....	53.5	52.5	.....	48.8	57.8
....	....	40.0	49.0	.....	.....	.....	47.5	.....	47.2	.....	55.0	42.5	.....	46.0	54.9
....	....	37.5	47.0	.....	.....	.....	47.5	.....	43.8	.....	54.0	40.6	.....	45.4	53.3
....	.. .	37.5	46.0	.....	.....	.....	47.5	.....	44.8	.....	53.0	41.0	.....	44.4	51.3
....	....	39.1	48.4	... .	.....	.... .	47.7	.....	47.6	.... .	53.0	46.9	.....	47.5	55.8
66.3	55.5	47.5	52.0	58.8	60.0	60.0	50.0	58.0	60.5	55.0	60.0	60.0	64.0	57.0	58.6
62.0	53.7	47.5	52.0	57.6	53.5	57.0	51.3	58.0	60.0	54.5	60.0	57.0	58.3	55.6	59.0
60.8	50.6	47.5	52.0	52.5	50.0	51.9	49.5	52.0	55.3	51.4	60.0	52.2	48 0	53.2	59.6
65.0	50.5	47.5	51.3	53.8	51.3	50.0	48.5	52.0	55.9	50.5	60.0	52.0	59.0	53.3	59.2
61.9	50.0	41.4	52.0	54.9	49.4	50.0	44.9	52.0	56.0	50.0	60.0	52.0	59.0	52.5	60.1
59.2	50.1	44.0	52.0	54.2	50.0	50.0	44.0	50.5	57.6	50.0	60.0	52.0	61.0	52.0	57.6
62.5	51.5	45.6	51.9	55.5	52.7	53.0	48.4	54.1	57.6	51.8	60.0	54.4	58.8	54.0	59.0

MARKET

TABLE IX. Showing the average price

Products.	Barrie.	Belleville.	Brampton.	Brantford.	Brockville.	Chatham.	Cobourg.	Essex.	Goderich.	Guelph.	Hamilton.	Kingston.	Lindsay.	London.	Orangeville.
	cts.	cts.	cts.	cts.	cts	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
CORN (in ear): per bush.															
October	....	...	....	26.5	26.0	35.6	....	21.0	....	27.5	28.0	30.0	....	....	....
November	....	....	..	26.7	26.3	34.5	....	21.0	....	....	27.7	23.3	..	....	....
December	....	....	....	26.1	27.5	37.2	....	20.2	....	....	27.2	30.8	....	....	....
Average	....	....	....	26.5	26.6	35.6	....	20 7	....	27.5	27.6	28.1	....	....	....
BUCKWHEAT: per bush.															
October	....	....	....	....	42.5	38.0	41.0	....	..	...	....	....	39.0	....	....
November	..	....	....	....	42.6	..	41.5	....	....	....	....	....	41 0		....
December	....	...	....	....	43.0	41.8	....	....	....	....	....	....	45.8	....	....
Average	....	....	....	....	42.7	41.0	41.4	....	....	....	....	....	42.0	....	....
BEANS: per bush.															
October	....	....	....	....	175.0	105.6	....	....	....	....	....	....	....	....	....
November	....	....	....	...	175.0	92.8	....	....	....	....	....	....	..	....	....
December	....	....	....	....	175.0	88.8	....	....	....	....	....	....	....	....	....
Average	....	....	....	....	175.0	95.7	....	....	....	....	....	....	....	....	....
POTATOES: per bush.															
October	26.7	50.0	35.8	46.7	39.4	31.1	35.0	50.0	37.5	30.0	45.6	45.0	31.3	51.0	28.3
November	25 0	50.0	35.0	40.7	37.5	36.3	31.3	50.0	37.5	30.8	36.7	40.0	27.5	46.0	28.3
December	27.5	50.0	35.0	39.2	52.5	38.9	....	56.0	37.5	30.6	33.3	42.8	32.5	51.7	28.3
Average	26.3	50.0	35.3	41.7	43.1	35.5	32.9	52.3	37.5	30.5	38.3	42.6	30.7	49.9	28.3
WOOL: per pound:															
July	18.0	17.5	16.5	19.0	19.0	17.6	....	....	19.0	19.5	18.5	16.7	17.0	18.5	19.0
August	18.0	17.5	16.5	19.0	19.0	17.7	....	....	19.0	19.5	18.7	16.3	18.0	18.5	19.0
September	18.0	17.5	16.5	19.0	19.0	17.4	....	....	18.3	19.2	17.8	15.8	18.0	18.5	17.9
October	18 0	17.5	16.5	19.0	19.0	17.5	....	....	17.5	18.5	18.5	16.3	17.3	18.5	16.5
November	18.0	17.5	16.5	19.0	19.0	17.6	....	....	18.4	18.2	18.4	15.7	16.5	17.8	16.5
December	18.0	17.5	16.5	19.0	19.0	19.0	....	....	19.0	17.5	18.7	16.0	16.5	....	16.5
Average	18.0	17.5	16.5	19.0	19.0	17.6	....	....	18.5	18.9	18.5	16.1	17.3	18.3	17.7
HAY: per ton:	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
July	6 50	8 25	8 00	7 38	8 50	6 56	....	9 50	6 75	7 06	8 27	9 33	6 00	7 00	5 25
August	6 50	8 00	8 00	7 70	9 00	6 75	....	8 00	6 75	7 20	8 20	8 88	6 83	8 10	5 65
September	6 50	8 00	8 00	8 00	9 00	7 19	....	8 00	6 75	7 08	9 13	8 75	7 50	8 25	6 25
October	6 50	8 00	8 00	7 63	9 00	6 75	....	8 00	6 75	7 08	7 67	7 92	8 13	8 25	6 25
November	6 50	8 00	8 00	9 13	9 00	7 25	....	8 00	6 75	7 06	7 69	7 50	8 50	8 50	6 25
December	6 50	8 00	8 00	7 13	9 00	7 25	....	7 00	6 75	7 00	7 92	7 75	7 75	8 13	6 42
Average	6 50	8 05	8 00	7 92	8 92	6 95	....	7 98	6 75	7 09	8 10	8 36	7 50	8 05	5 98

PRICES.—*Continued.*

of Agricultural Products, etc.—*Continued.*

Ottawa.	Owen Sound.	Pembroke.	Perth.	Peterborough.	St. Catharines.	St. Thomas.	Simcoe.	Stratford.	Toronto.	Walkerton.	Waterloo.	Whitby.	Woodstock.	The Province.	
														1893.	1892.
cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
31 9	....	....	.....	.....	25.0	26.0	22.5	.....	.....	.....	.....	...	.....	27.2	26.6
30.4	....	.....	.....	...	25.0	24.3	22.0	.....	.....	.....	....	.....	.....	26.0	26.8
30.4	...	.....	...	.....	24.6	23.8	20.0	.. ..	.....	.....	.....	.....	.....	26.5	25.8
30 8	...	.....	.....	.....	24.8	24.5	21.8	. ..	.....	.....	.....	.....	.....	26.5	26.3
....	...	.....	39.3	.....	. ...	.....	36.0	.....	.....	.... .	.....	41.8	.....	39.7	45.1
....	....	....	40.0	.....	.....	.....	40.0	.....	44.2	.....	.....	42.5	.....	41.8	42.2
....	...	.....	40.0	42.5	.. ...	.....	41.0	.....	50.0	.....	.....	42.5	.....	43.4	40.6
....	....	.....	39.8	42.5	.....	.....	38.7	... ..	46.8	.....	.....	42.3	.....	41.8	42.2
....	....	105.0	.....	.....	.....	.....	90.0	.....	110.0	.....	.....	.....	.....	117.1	99.6
....	....	105.0	.....	.....	.....	.....	90.0	.....	121.0	.....	.. ..	.....	.....	117.8	98.3
....	....	105.0	.....	.....	.....	.....	90.0	. ....	122.5	.....	.....	.....	.....	119.2	98.7
....	....	105.0	.....	.....	.....	.....	90.0	.....	118.1	.....	.....	.....	.....	118.0	98.8
37.5	36.7	40.0	38.8	.....	37.5	50.0	50.0	48.3	36.9	45.8	60.0	34.6	.....	40.2	45.9
41.1	26.7	40.0	35.0	.....	41.9	49.0	39.7	45.0	37.4	42.0	50.0	32.3	50 0	38.5	51.0
47.2	33.3	42.5	35.0	36.7	45.8	47.8	35.3	45.8	37.5	46.7	40.0	31.7	50.0	40 1	53.8
42.5	32.5	40.8	36.2	36.7	42.9	48.9	42.6	46.1	37.3	44.6	52 5	32 9	50.0	39.5	50.4
17.5	....	20.0	17.0	18.0	20.0	....	.....	18.0	19.4	17.5	.....	.....	19.0	18.4	18.2
17.6	16 5	20.0	17.5	18.5	20.0	.....	.....	18.0	19.4	17.5	.....	.....	19.0	18.4	18.0
18.7	16.5	20.0	18.0	18.0	20.0	.....	.....	18.0	19.4	17.5	.. ..	....	.....	18.3	18.3
18.8	16.5	20.0	18.0	.....	20.0	.. ..	.....	.....	17.1	.....	.	.....	19 0	17.8	18.3
18.1	16.5	20.0	18.0	.....	20 0	.....	....	.....	19.5	.....	.....	.....	19.0	18.2	18.5
18.3	16.5	20.0	18.0	.....	20.0	.....	.....	.....	19.5	.....	....	.....	19.0	18.2	18.1
18 0	16.5	20.0	17.8	18.3	20.0	.....	.....	18.0	19.1	17.5	.....	.....	19.0	18.2	18.2
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
8 75	5 50	10 17	9 00	7 00	6 75	7 25	.....	7 13	9 95	7 17	8 00	9 00	7 00	7 71	8 98
7 45	5 50	9 00	9 00	7 50	7 00	7 25	.....	7 10	8 78	7 00	8 00	9 00	7 38	7 64	7 81
7 83	5 60	9 00	9 00	7 50	7 00	7 81	6 13	6 88	8 81	7 00	8 00	8 33	7 75	7 60	8 08
8 25	5 94	9 00	9 00	.....	7 13	8 00	6 81	7 25	8 50	6 75	8 00	7 75	7 75	7 61	8 05
8 25	6 50	9 00	9 00	.... .	8 63	8 00	6 55	6 95	8 34	6 43	8 00	7 50	7 00	7 72	8 71
8 17	6 40	9 00	8 40	8 00	7 67	8 00	6 50	6 75	8 28	6 13	8 00	7 50	7 00	7 55	7 78
8 08	5 93	9 15	8 87	7 50	7 37	7 69	6 56	7 01	8 69	6 73	8 00	8 21	7 28	7 64	8 20

VALUES—FALL AND SPRING WHEAT.

TABLE X. Showing by County Municipalities and groups of Counties the value at market prices of the total crop of Fall and Spring Wheat in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Fall Wheat.			Spring Wheat.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$	$	$	$	$	$
Essex	410,988	455,839	555,627	2,630	8,168	19,878
Kent	803,529	949,116	1,045,854	9,647	35,106	44,984
Elgin	590,205	743,236	775,806	267	8,809	18,382
Norfolk	417,377	648,379	551,626	2,457	6,364	9,491
Haldimand	335,656	501,772	473,503	4,345	25,799	36,222
Welland	161,497	287,040	313,284	233	1,791	13,420
Totals	2,719,252	3,585,382	3,715,700	19,579	86,037	142,377
Lambton	545,628	595,497	616,644	5,621	41,054	71,759
Huron	699,882	979,775	1,110,704	51,552	195,417	185,797
Bruce	366,834	607,245	759,981	52,278	169,309	159,365
Totals	1,612,344	2,182,517	2,487,329	109,451	405,780	416,921
Grey	178,183	316,490	434,987	108,257	222,436	448,702
Simcoe	550,333	900,813	975,258	167,055	325,842	441,124
Totals	728,516	1,217,303	1,410,245	275,312	548,278	889,826
Middlesex	941,721	1,343,133	1,299,225	10,535	51,403	110,225
Oxford	624,031	731,646	713,883	7,655	45,425	108,590
Brant	277,272	546,307	483,125	9,444	11,239	14,083
Perth	533,654	652,821	754,772	28,387	132,024	150,035
Wellington	183,655	228,960	394,895	158,454	356,187	280,630
Waterloo	529,722	714,701	713,653	19,014	63,773	58,545
Dufferin	46,311	82,634	150,979	140,094	197,171	263,847
Totals	3,136,366	4,300,202	4,510,532	373,583	857,222	985,955
Lincoln	197,278	331,903	335,684	526	12,158	24,115
Wentworth	355,499	510,185	485,612	2,607	30,388	34,732
Halton	278,106	382,518	361,741	8,308	62,640	52,893
Peel	328,387	439,494	459,027	71,370	210,570	201,395
York	434,575	559,381	672,346	93,776	296,723	370,600
Ontario	74,848	127,642	164,434	221,112	357,239	663,586
Durham	61,003	71,603	70,815	95,162	203,503	475,748
Northumberland	171,849	247,322	210,291	73,591	201,661	311,110
Prince Edward	52,765	91,527	48,868	12,373	51,013	69,773
Totals	1,954,310	2,761,575	2,808,818	578,825	1,425,895	2,203,952
Lennox and Addington	44,527	40,698	39,470	22,985	45,386	67,122
Frontenac	3,804	14,015	24,382	44,541	94,864	110,937
Leeds and Grenville	35,965	35,563	71,473	68,319	136,054	168,484
Dundas	4,466	12,600	15,761	24,351	59,884	70,195
Stormont	1,359	2,419	8,263	33,004	55,012	66,268
Glengarry	1,579	3,123	6,988	39,778	94,113	107,582
Prescott	1,160	.....	724	55,975	94,669	111,164
Russell	419	.....	2,767	16,773	38,612	56,249
Carleton	6,460	8,396	17,009	159,558	328,117	336,958
Renfrew	4,862	8,150	13,132	208,338	378,911	353,603
Lanark	16,537	21,810	46,478	102,618	210,213	189,997
Totals	121,138	146,774	246,447	776,240	1,535,835	1,638,559
Victoria	33,007	45,869	116,619	135,129	306,167	409,793
Peterborough	83,584	85,587	156,784	84,134	216,970	294,279
Haliburton	973	1,400	1,791	8,205	16,090	17,967
Hastings	111,601	148,917	161,001	63,111	128,877	177,553
Totals	229,165	281,773	436,195	290,579	668,104	897,592
Muskoka	172	362	838	5,261	11,647	16,393
Parry Sound	688	661	713	8,216	10,884	17,671
Nipissing	84	99	37	3,659	4,186	1,335
Algoma	7,569	11,547	8,699	45,816	67,020	97,792
Totals	8,513	12,669	10,287	62,952	93,737	133,191
The Province	10,509,604	14,488,195	15,625,553	2,486,521	5,620,888	7,308,373

VALUES—BARLEY AND OATS.

TABLE XI. Showing by County Municipalities and groups of Counties the value at market prices of the total crop of Barley and Oats in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Barley.			Oats.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$	$	$	$	$	$
Essex	35,971	30,870	45,345	411,078	370,248	414,615
Kent	57,346	74,054	94,996	395,189	437,835	467,118
Elgin	48,072	53,354	68,371	329,130	295,272	422,497
Norfolk	18,004	25,903	74,180	198,608	245,731	295,813
Haldimand	46,805	59,378	145,867	217,853	207,133	256,003
Welland	22,918	24,680	43,612	127,263	145,764	207,931
Totals	229,116	268,239	472,371	1,679,121	1,701,983	2,063,977
Lambton	71,398	70,456	184,292	399,439	409,972	523,834
Huron	156,214	193,241	369,343	1,174,262	1,083,900	1,070,739
Bruce	95,061	122,890	238,083	736,105	810,848	745,613
Totals	322,673	386,587	791,718	2,309,806	2,304,720	2,340,186
Grey	132,488	148,621	268,207	1,216,215	1,174,558	1,074,418
Simcoe	241,889	335,634	410,943	917,227	885,156	826,433
Totals	374,377	484,255	679,150	2,133,442	2,059,714	1,900,851
Middlesex	86,841	108,611	202,290	776,137	792,499	978,594
Oxford	95,791	122,262	248,823	636,297	642,924	731,697
Brant	102,143	125,317	245,725	156,283	184,396	230,980
Perth	123,898	115,449	255,730	953,555	823,997	871,351
Wellington	256,680	284,598	496,897	961,491	877,860	980,939
Waterloo	144,428	187,107	264,827	499,926	543,652	505,184
Dufferin	95,809	101,247	154,317	569,934	466,557	405,159
Totals	905,590	1,044,591	1,868,609	4,553,623	4,331,885	4,703,904
Lincoln	16,421	24,417	51,564	156,283	201,404	205,811
Wentworth	67,312	96,268	175,308	281,169	281,121	359,746
Halton	61,480	73,757	172,765	219,983	250,128	249,359
Peel	216,691	236,938	472,296	442,499	403,646	417,711
York	342,672	436,707	801,303	871,842	916,497	942,484
Ontario	207,906	274,927	529,915	661,146	681,611	694,630
Durham	259,044	339,120	600,645	425,776	419,014	440,815
Northumberland	149,431	221,214	470,788	280,144	305,461	325,582
Prince Edward	86,388	177,050	384,781	88,531	121,659	134,287
Totals	1,407,345	1,880,398	3,659,365	3,427,373	3,580,541	3,770,425
Lennox and Addington	61,714	131,272	389,248	184,424	200,914	225,717
Frontenac	39,947	51,018	187,478	293,115	282,899	292,120
Leeds and Grenville	52,494	78,469	132,030	605,683	666,038	743,102
Dundas	19,527	37,807	92,685	317,614	361,167	375,618
Stormont	28,332	28,126	35,263	234,490	303,402	297,339
Glengarry	18,005	19,125	26,631	282,126	347,180	345,738
Prescott	41,137	38,201	43,415	275,470	302,628	297,239
Russell	17,371	16,660	20,997	116,707	181,936	209,127
Carleton	65,649	84,693	124,133	509,061	740,702	760,065
Renfrew	8,003	12,653	17,520	456,954	484,627	476,254
Lanark	20,662	35,975	39,061	421,894	472,591	434,958
Totals	372,841	534,029	1,108,461	3,697,538	4,344,084	4,457,277
Victoria	157,559	224,069	377,619	528,543	516,905	486,245
Peterborough	41,496	53,322	146,076	343,891	321,932	344,881
Haliburton	1,039	1,310	3,183	48,826	43,019	50,219
Hastings	92,953	163,158	408,390	415,201	411,761	444,469
Totals	293,047	441,859	935,268	1,336,461	1,293,617	1,325,814
Muskoka	6,700	5,573	6,383	103,145	102,940	96,588
Parry Sound	6,985	6,380	8,125	91,717	93,589	63,877
Nipissing	2,183	2,354	695	20,809	29,129	7,927
Algoma	11,384	14,528	9,225	97,029	103,278	66,713
Totals	27,252	29,335	24,428	312,700	328,936	235,105
The Province	3,932,241	5,069,293	9,539,370	19,450,064	19,945,480	20,797,539

VALUES—RYE AND PEAS.

TABLE XII. Showing by County Municipalities and groups of Counties the value at market prices of the total crop of Rye and Peas in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Rye.			Peas.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$	$	$	$	$	$
Essex	6,037	8,624	8,763	29,101	14,539	38,657
Kent	9,475	8,484	9,097	14,919	26,273	101,512
Elgin	13,727	17,727	13,513	93,084	100,716	140,991
Norfolk	23,206	44,654	56,485	146,395	205,044	190,794
Haldimand	3,790	9,699	7,426	139,027	126,531	150,958
Welland	3,953	3,350	5,597	39,433	42,412	44,159
Totals	60,188	92,538	100,881	461,959	515,515	667,071
Lambton	1,268	2,545	2,264	26,239	49,141	101,514
Huron	1,494	8,422	3,272	473,501	539,772	477,317
Bruce	1,894	2,452	4,646	509,810	572,917	548,711
Totals	4,656	13,419	10,182	1,009,550	1,161,830	1,127,542
Grey	5,105	4,068	5,701	562,525	523,104	613,745
Simcoe	11,460	9,078	22,643	528,886	550,030	457,669
Totals	16,565	13,146	28,344	1,091,411	1,073,134	1,071,414
Middlesex	2,376	6,171	5,052	127,753	144,363	252,503
Oxford	7,890	9,786	10,425	177,508	170,752	206,362
Brant	6,372	13,451	9,168	90,981	121,084	118,143
Perth	2,362	1,805	1,592	288,300	279,933	326,413
Wellington	10,135	13,353	9,105	389,868	440,777	508,976
Waterloo	4,937	6,211	5,402	174,543	266,222	214,040
Dufferin	1,673	2,574	6,382	176,091	190,208	164,405
Totals	35,745	53,351	47,126	1,425,044	1,613,339	1,790,842
Lincoln	5,059	3,596	3,794	52,838	73,973	56,393
Wentworth	3,125	3,962	8,755	125,996	121,217	136,163
Halton	3,807	7,107	5,491	128,806	124,289	139,046
Peel	7,345	13,043	13,773	221,132	251,838	193,896
York	7,703	9,839	14,924	448,962	410,768	405,857
Ontario	10,467	10,815	23,902	367,540	372,762	354,344
Durham	17,854	17,803	38,538	353,913	434,866	289,250
Northumberland	54,357	60,113	84,144	276,653	347,453	237,301
Prince Edward	28,400	42,135	65,120	155,815	238,914	163,829
Totals	138,117	168,413	258,441	2,131,655	2,376,080	1,976,079
Lennox and Addington	10,394	16,748	37,181	77,226	117,280	103,243
Frontenac	15,793	18,173	33,467	92,894	101,969	118,904
Leeds and Grenville	20,407	20,369	54,164	37,857	55,262	70,919
Dundas	3,916	10,810	15,562	8,202	11,546	20,736
Stormont	987	2,888	4,923	10,758	14,040	29,091
Glengarry	805	636	632	21,603	21,419	56,387
Prescott	2,829	797	2,360	26,322	23,083	77,669
Russell	1,617	2,962	3,209	17,613	16,653	40,409
Carleton	15,889	17,456	52,776	104,955	107,423	162,647
Renfrew	49,250	68,327	75,419	207,007	268,310	261,964
Lanark	11,759	17,948	44,250	106,705	132,690	148,343
Totals	133,646	177,114	323,943	711,142	869,675	1,090,312
Victoria	5,391	11,686	11,683	211,692	269,149	213,995
Peterborough	26,137	31,022	31,009	218,523	203,466	187,755
Haliburton	828	1,413	2,381	16,321	23,208	19,599
Hastings	44,141	58,077	109,249	189,855	236,725	211,228
Totals	76,497	102,198	154,322	636,391	732,548	632,577
Muskoka	2,814	1,895	3,777	33,889	41,720	38,517
Parry Sound	2,673	4,673	4,042	37,535	38,398	24,427
Nipissing	399	821	374	11,604	10,511	3,434
Algoma	1,216	4,369	2,320	101,056	118,964	72,615
Totals	7,102	11,758	10,513	184,084	209,593	138,993
The Province	472,516	631,937	933,752	7,651,236	8,551,714	8,494,830

VALUES—CORN AND BUCKWHEAT.

TABLE XIII. Showing by County Municipalities and groups of Counties the value at market prices of the total crop of Corn (for husking and silo) and Buckwheat in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Corn.					Buckwheat.		
	Husking.	Silo.	Total.					
			1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$	$	$	$	$	$	$	$
Essex	855,161	20,228	875,389	486,000	678,354	9,622	19,139	8,434
Kent	636,240	12,926	649,166	517,341	554,818	11,897	16,233	8,876
Elgin	347,967	42,462	390,429	246,873	305,410	16,568	25,639	13,004
Norfolk	194,735	33,030	227,765	248,215	251,554	39,433	42,644	36,325
Haldimand	28,144	9,896	38,040	25,631	34,780	6,036	3,761	4,998
Welland	111,159	23,964	135,123	92,011	112,485	14,715	14,285	14,935
Totals	2,173,406	142,506	2,315,912	1,616,071	1,937,401	98,271	121,701	86,572
Lambton	187,770	32,918	220,688	163,603	151,081	8,861	6,644	4,716
Huron	19,993	78,360	98,353	82,738	44,421	6,166	8,165	2,932
Bruce	8,475	43,532	52,007	54,966	19,076	4,832	8,502	3,436
Totals	216,238	154,810	371,048	301,307	214,578	19,859	23,311	11,084
Grey	12,186	52,498	64,684	60,418	18,690	9,401	8,923	3,713
Simcoe	21,659	74,198	95,857	92,771	28,713	20,479	21,392	5,906
Totals	33,845	126,696	160,541	153,189	47,403	29,880	30,315	9,619
Middlesex	238,408	91,608	330,016	242,338	234,121	7,575	8,237	4,269
Oxford	100,835	120,516	221,351	191,922	172,089	3,742	5,484	4,762
Brant	65,890	27,490	93,380	82,797	95,560	4,640	4,117	4,819
Perth	8,177	66,618	74,795	75,493	27,779	1,421	2,564	1,035
Wellington	7,286	49,498	56,784	59,469	20,641	1,264	2,289	1,788
Waterloo	9,791	24,078	33,869	41,867	28,707	954	4,501	1,108
Dufferin	2,910	3,744	6,654	6,756	2,410	1,296	793	960
Totals	433,297	383,552	816,849	700,642	581,307	20,892	27,985	18,741
Lincoln	112,757	21,894	134,651	127,374	117,988	3,666	8,878	6,263
Wentworth	59,670	70,828	130,498	148,464	105,565	14,808	9,690	7,197
Halton	15,090	29,638	44,728	34,616	27,373	1,422	3,589	1,218
Peel	11,543	41,712	53,255	42,482	17,765	602	2,038	1,792
York	7,635	59,788	67,423	56,714	36,947	6,455	4,306	2,823
Ontario	23,238	55,046	78,284	77,593	50,386	44,873	38,153	12,842
Durham	30,452	33,194	63,646	49,397	35,640	87,063	81,515	29,694
Northumberland	58,576	70,336	128,912	137,555	79,071	151,724	150,898	70,741
Prince Edward	71,831	43,852	115,683	124,510	95,821	124,833	126,981	72,739
Totals	390,792	426,288	817,080	798,705	566,556	435,446	426,048	205,309
Lennox & Add'ton	18,579	39,450	58,029	65,981	43,918	47,893	52,635	34,012
Frontenac	27,622	54,512	82,134	74,482	38,525	20,501	31,368	17,399
Leeds & Grenville	145,641	179,026	324,667	292,643	157,146	40,686	35,610	46,459
Dundas	31,167	45,388	76,555	92,802	46,945	16,423	14,001	17,346
Stormont	29,331	47,146	76,477	88,253	35,403	18,804	18,757	20,535
Glengarry	12,499	73,928	86,427	76,655	28,184	17,233	6,922	10,373
Prescott	42,737	26,620	69,357	57,275	31,688	15,216	10,875	12,634
Russell	4,330	57,890	62,220	50,544	16,868	5,196	5,798	8,757
Carleton	11,935	116,200	128,135	111,804	43,854	23,169	39,318	30,979
Renfrew	9,433	19,542	28,975	32,819	12,498	17,705	23,191	11,848
Lanark	17,297	64,032	81,329	72,491	31,550	36,374	46,807	45,002
Totals	350,571	723,734	1,074,305	1,015,749	486,579	259,200	285,282	255,344
Victoria	6,333	4,228	10,561	19,544	11,636	31,682	42,454	12,368
Peterborough	10,091	30,534	40,625	23,296	10,551	24,474	18,441	10,830
Haliburton	1,478	312	1,790	3,530	1,801	2,871	3,989	2,278
Hastings	108,601	103,038	211,639	211,407	114,549	65,089	73,223	41,964
Totals	126,503	138,112	264,615	257,777	138,537	124,116	138,107	67,440
Muskoka	2,731	2,386	5,117	3,619	2,699	3,256	3,822	3,464
Parry Sound	922	532	1,454	2,501	776	1,785	1,747	1,124
Nipissing	398	.....	398	552	206	727	494	325
Algoma	632	432	1,064	1,060	1,099	1,599	5,140	1,286
Totals	4,683	3,350	8,033	7,732	4,780	7,367	11,203	6,199
The Province	3,729,335	2,099,048	5,828,383	4,851,172	3,977,141	995,031	1,063,952	660,308

VALUES—BEANS AND POTATOES.

TABLE XIV. Showing by County Municipalities and groups of Counties the value at market prices of the total crop of Beans and Potatoes in Ontario, in the years 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Beans.			Potatoes.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$	$	$	$	$	$
Essex	33,946	9,431	14,629	87,173	97,194	121,665
Kent	486,146	328,645	305,513	92,650	106,800	177,637
Elgin	37,479	23,338	31,562	88,596	76,286	120,603
Norfolk	15,827	6,688	11,492	97,792	105,893	150,829
Haldimand	5,523	7,082	4,068	46,393	31,880	65,219
Welland	13,747	8,882	12,765	97,466	83,414	98,677
Totals	592,668	384,066	380,029	510,070	501,467	734,630
Lambton	15,039	6,943	8,137	64,599	65,444	126,103
Huron	2,388	1,522	2,828	164,656	237,535	273,660
Bruce	2,134	889	2,117	115,312	172,755	237,482
Totals	19,561	9,354	13,082	344,567	475,734	637,245
Grey	5,127	3,532	3,015	213,494	253,232	377,340
Simcoe	7,493	2,371	2,577	297,677	373,048	386,446
Totals	12,620	5,903	5,592	511,171	626,280	763,786
Middlesex	14,496	6,891	7,385	164,574	103,351	251,655
Oxford	4,792	5,987	6,078	100,617	99,068	155,013
Brant	177	445	6,557	83,434	72,704	107,301
Perth	478	217	1,168	126,861	147,966	186,050
Wellington	665	1,107	718	216,334	290,187	321,154
Waterloo	241	553	675	122,561	145,346	156,557
Dufferin	236		519	153,531	159,395	197,290
Totals	21,085	15,200	23,100	967,912	1,018,017	1,375,020
Lincoln	3,483	1,668	3,471	61,098	55,934	79,079
Wentworth	793	830	3,302	147,261	143,288	187,951
Halton	802	198	649	65,975	50,022	76,611
Peel	613	869	1,237	103,753	135,746	136,572
York	6,627	1,932	3,538	235,631	288,843	344,655
Ontario	3,073	3,030	5,447	174,922	235,350	229,846
Durham	5,393	5,575	6,782	137,511	164,199	177,526
Northumberland	15,109	12,596	11,774	164,543	277,346	214,619
Prince Edward	6,562	8,278	9,155	59,062	68,069	95,159
Totals	42,455	34,976	45,355	1,149,756	1,418,797	1,542,018
Lennox and Addington	8,619	5,481	4,625	75,326	98,498	156,362
Frontenac	2,530	2,076	6,876	105,071	135,170	177,984
Leeds and Grenville	5,227	6,919	8,636	213,188	194,546	363,401
Dundas	2,982	3,507	6,177	40,802	53,590	141,360
Stormont	3,586	1,671	4,663	35,799	41,021	104,545
Glengarry	15,713	3,952	4,132	36,018	55,454	115,903
Prescott	5,358	5,482	13,945	75,072	68,258	130,407
Russell	8,405	2,248	4,682	40,601	40,549	68,026
Carleton	10,102	12,040	10,821	119,133	183,548	334,564
Renfrew	11,535	11,788	11,789	152,005	215,290	256,169
Lanark	4,916	2,666	5,827	117,932	194,413	220,220
Totals	78,973	57,830	82,173	1,010,947	1,280,337	2,068,941
Victoria	760	5,761	2,213	120,100	145,364	179,402
Peterborough	2,347	2,066	2,474	123,612	139,441	146,896
Haliburton	776	640	580	25,886	44,171	41,272
Hastings	8,966	10,962	7,073	169,952	236,085	299,383
Totals	12,849	19,429	12,340	439,550	565,061	666,953
Muskoka	1,872	548	941	39,760	79,068	81,416
Parry Sound	496	384	411	47,202	87,237	59,090
Nipissing	434	332	227	20,836	47,386	10,630
Algoma	873	1,478	438	58,158	94,684	64,908
Totals	3,675	2,742	2,017	165,956	308,375	216,044
The Province	783,886	529,500	563,688	5,099,929	6,194,068	8,004,637

VALUES—MANGEL-WURZELS AND CARROTS.

TABLE XV. Showing by County Municipalities and groups of Counties the estimated value of the total crop of Mangel-wurzels and Carrots in Ontario, in the years 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Mangel-wurzels.			Carrots.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$	$	$	$	$	$
Essex	20,357	16,096	8,413	3,354	3,038	2,919
Kent	8,875	9,797	10,367	5,561	5,310	5,717
Elgin	10,474	13,401	10,565	6,734	8,883	6,850
Norfolk	10,290	6,168	7,276	6,268	8,730	5,761
Haldimand	4,501	5,099	4,623	1,875	4,210	2,882
Welland	1,932	3,935	4,786	4,098	3,358	2,991
Totals	56,229	54,496	46,030	27,890	33,529	27,120
Lambton	22,183	12,424	14,270	10,806	7,472	7,850
Huron	74,130	79,176	61,505	19,790	14,016	23,100
Bruce	14,919	19,663	15,439	11,114	20,206	12,927
Totals	111,232	111,263	91,215	41,710	41,694	43,877
Grey	15,972	14,303	13,594	14,960	26,154	23,620
Simcoe	17,701	17,326	19,653	19,708	20,782	25,264
Totals	33,673	31,629	33,247	34,668	46,936	48,884
Middlesex	44,393	35,975	49,658	19,656	13,366	19,982
Oxford	31,710	46,426	47,833	9,472	11,778	16,510
Brant	13,559	11,564	14,297	7,282	4,450	10,021
Perth	71,567	68,337	66,099	12,786	10,935	18,568
Wellington	42,401	56,452	37,544	11,781	19,406	13,186
Waterloo	15,803	22,750	17,769	10,714	16,498	16,416
Dufferin	3,654	3,936	4,162	4,303	7,852	5,870
Totals	223,087	245,440	237,362	75,994	84,285	100,553
Lincoln	6,229	9,654	7,734	4,264	7,909	4,763
Wentworth	16,249	19,168	17,493	7,308	6,826	10,376
Halton	17,311	16,316	16,567	3,432	4,918	5,605
Peel	12,720	25,950	14,947	8,400	12,054	12,181
York	53,894	68,679	62,931	13,489	19,840	32,381
Ontario	19,038	25,657	27,363	10,675	15,175	21,916
Durham	21,908	37,267	18,643	12,644	22,372	21,714
Northumberland	15,316	24,207	16,594	9,184	17,440	11,851
Prince Edward	3,094	4,228	3,015	719	2,064	1,658
Totals	165,759	231,126	185,287	70,115	108,598	122,445
Lennox and Addington	2,970	2,437	3,411	2,350	1,420	2,096
Frontenac	4,480	4,828	5,099	3,747	6,460	5,665
Leeds and Grenville	5,409	11,767	7,895	7,349	14,075	7,930
Dundas	2,330	5,990	3,765	4,857	18,047	4,753
Stormont	1,532	650	1,078	9,491	2,123	2,248
Glengarry	1,581	3,337	2,149	5,236	4,379	2,152
Prescott	1,045	3,427	2,447	3,223	4,734	2,103
Russell	6,202	5,902	3,011	8,281	7,992	6,303
Carleton	7,784	11,592	16,561	13,859	14,352	21,987
Renfrew	3,726	7,082	3,379	5,671	10,714	4,814
Lanark	8,900	7,208	5,160	7,530	12,295	6,745
Totals	45,959	64,220	53,955	71,594	96,591	66,796
Victoria	18,698	51,850	23,515	6,054	11,968	12,772
Peterborough	14,083	13,371	9,743	23,278	33,735	16,163
Haliburton	468	208	210	743	352	787
Hastings	14,206	21,835	12,918	8,395	6,401	6,321
Totals	47,455	87,264	46,386	38,470	52,456	36,043
Muskoka	1,115	1,240	1,090	4,812	7,294	3,338
Parry Sound	720	704	286	3,209	3,887	1,568
Nipissing	160	96	31	250	600	101
Algoma	1,216	560	538	2,719	2,550	1,278
Totals	3,211	2,600	1,945	10,990	14,331	6,285
The Province	686,605	828,038	695,427	371,431	478,420	452,003

VALUES—TURNIPS AND HAY AND CLOVER.

TABLE XVI. Showing by County Municipalities and groups of Counties the value at market prices of the total crops of Turnips and Hay and Clover in Ontario in the years 1892 and 1893 and the yearly average for the twelve years 1882-93.

Counties.	Turnips.			Hay and Clover.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$	$	$	$	$	$
Essex	15,164	10,522	6,802	652,234	407,983	599,613
Kent	10,577	12,662	12,204	874,979	730,317	823,194
Elgin	18,125	13,434	13,504	848,964	831,431	793,794
Norfolk	57,025	57,852	42,356	653,075	561,413	568,119
Haldimand	3,887	4,264	3,656	724,257	748,398	651,433
Welland	12,675	7,326	6,380	626,969	693,867	649,189
Totals	117,453	106,060	84,902	4,380,478	3,973,909	4,085,342
Lambton	19,896	18,148	12,186	1,018,580	1,019,227	865,175
Huron	321,386	380,907	286,175	1,715,646	1,735,194	1,452,510
Bruce	273,258	463,330	255,714	1,369,867	1,444,496	1,167,773
Totals	614,540	862,385	554,075	4,104,093	4,198,917	3,485,458
Grey	433,669	489,042	391,722	1,826,579	1,920,022	1,563,948
Simcoe	236,802	272,182	165,693	1,298,288	1,191,861	1,094,344
Totals	670,471	761,224	557,415	3,124,867	3,111,883	2,658,292
Middlesex	102,502	90,406	68,885	1,631,705	1,487,701	1,454,000
Oxford	342,105	329,816	254,543	1,007,120	1,089,846	1,014,457
Brant	171,567	159,073	135,574	501,642	527,096	477,306
Perth	234,900	266,041	198,904	1,232,752	1,182,383	1,095,034
Wellington	655,108	698,408	581,268	1,459,370	1,435,533	1,322,573
Waterloo	277,935	301,297	218,753	648,132	722,625	668,459
Dufferin	150,907	164,708	107,060	571,159	500,421	477,790
Totals	1,935,024	2,009,749	1,564,987	7,051,880	6,945,605	6,509,619
Lincoln	12,311	10,857	8,817	566,292	618,510	563,578
Wentworth	127,160	155,771	122,578	641,370	854,850	676,331
Halton	102,992	82,322	80,595	566,789	538,453	468,019
Peel	84,180	82,668	58,563	715,387	622,593	566,177
York	207,103	227,906	153,996	1,236,473	1,301,955	1,076,264
Ontario	696,721	754,303	538,525	884,399	757,951	779,146
Durham	325,483	333,960	244,876	625,808	525,013	614,873
Northumberland	189,961	235,934	143,337	776,980	690,620	693,041
Prince Edward	2,059	2,760	2,733	456,566	496,330	416,169
Totals	1,747,970	1,886,481	1,354,020	6,470,064	6,406,275	5,853,598
Lennox and Addington	5,018	5,644	4,062	829,735	885,108	651,248
Frontenac	12,527	13,252	11,738	951,944	915,169	791,633
Leeds and Grenville	16,718	17,662	11,552	1,549,400	1,700,024	1,480,148
Dundas	3,060	3,465	2,188	602,628	597,796	567,024
Stormont	2,646	517	2,259	596,974	393,256	514,256
Glengarry	5,412	13,062	2,813	546,611	545,103	588,946
Prescott	9,701	7,576	5,149	780,441	556,370	532,387
Russell	34,400	27,709	16,398	375,002	305,024	263,978
Carleton	68,450	64,654	59,089	1,156,146	812,440	849,065
Renfrew	20,567	27,973	21,748	885,530	661,158	696,448
Lanark	27,600	29,218	19,887	1,059,958	998,407	846,793
Totals	206,099	210,732	156,883	9,334,369	8,369,855	7,781,926
Victoria	166,336	242,266	141,238	685,064	503,037	479,906
Peterborough	106,650	118,317	59,384	497,387	490,942	446,179
Haliburton	7,402	9,265	8,869	141,019	129,781	111,747
Hastings	58,700	49,640	30,521	1,208,006	932,078	894,770
Totals	339,088	419,488	240,012	2,531,476	2,055,838	1,932,602
Muskoka	23,206	31,147	30,441	310,428	280,505	261,646
Parry Sound	20,961	29,134	22,472	245,573	240,014	140,233
Nipissing	3,750	7,117	1,950	71,067	64,444	19,741
Algoma	18,973	30,647	18,925	297,280	308,427	166,684
Totals	66,890	98,045	73,788	924,348	893,390	588,304
The Province	5,697,535	6,354,164	4,586,082	37,921,575	35,955,672	32,895,141

VALUES—ALL FIELD CROPS AND WOOL.

TABLE XVII. Showing by County Municipalities and groups of Counties the aggregate value of all Field Crops in Ontario in the years 1892 and 1893, and the yearly average for the twelve years 1892-93; also the value at market price of the total clip of Wool in 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	All field crops.			Wool.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$	$	$	$	$	$
Essex	2,593,044	1,937,691	2,523,714	15,287	14,593	15,545
Kent	3,429,956	3,257,973	3,661,887	21,456	21,011	22,109
Elgin	2,491,854	2,458,899	2,734,852	30,129	29,546	25,743
Norfolk	1,913,522	2,213,678	2,252,101	18,945	18,352	16,954
Haldimand	1,577,788	1,760,637	1,841,638	17,870	17,542	19,447
Welland	1,262,022	1,412,115	1,530,211	11,270	11,246	13,085
Totals	13,268,186	13,040,993	14,544,403	114,957	112,290	112,883
Lambton	2,430,245	2,468,570	2,689,825	33,241	32,110	28,794
Huron	4,959,420	5,539,780	5,364,304	61,340	61,755	53,667
Bruce	3,605,425	4,470,468	4,170,363	60,877	59,736	54,076
Totals	10,995,090	12,478,818	12,224,492	155,458	153,601	136,537
Grey	4,786,659	5,164,903	5,241,402	81,453	82,270	74,937
Simcoe	4,410,855	4,998,286	4,862,666	54,637	49,832	48,074
Totals	9,197,514	10,163,189	10,104,068	136,090	132,102	123,011
Middlesex	4,260,280	4,434,445	4,937,844	48,163	44,547	43,172
Oxford	3,270,081	3,503,122	3,691,065	16,575	16,262	19,844
Brant	1,518,176	1,864,040	1,952,659	11,940	11,045	14,247
Perth	3,685,716	3,759,965	3,954,530	31,904	30,660	33,863
Wellington	4,403,990	4,764,586	4,970,314	50,833	49,806	50,995
Waterloo	2,482,779	3,037,103	2,870,095	21,125	19,072	22,342
Dufferin	1,921,652	1,884,252	1,941,150	21,847	22,252	19,623
Totals	21,542,674	23,247,513	24,317,657	202,387	193,644	204,086
Lincoln	1,220,399	1,488,235	1,469,054	11,672	11,327	10,304
Wentworth	1,921,155	2,382,028	2,331,109	16,387	14,432	16,002
Halton	1,503,941	1,630,873	1,657,932	14,449	12,711	13,573
Peel	2,266,334	2,479,929	2,567,332	20,794	19,522	19,036
York	4,026,625	4,600,090	4,921,049	30,652	30,253	30,510
Ontario	3,455,004	3,732,208	4,096,282	30,837	28,134	31,106
Durham	2,492,208	2,705,207	3,065,559	24,958	22,019	23,590
Northumberland	2,457,754	2,929,820	2,880,244	19,897	18,943	21,714
Prince Edward	1,192,850	1,555,518	1,563,107	7,568	6,932	8,859
Totals	20,536,270	23,503,908	24,551,668	177,214	164,273	174,694
Lennox and Addington	1,431,210	1,669,502	1,761,715	12,735	12,187	14,041
Frontenac	1,673,028	1,745,773	1,822,207	15,056	14,198	16,976
Leeds and Grenville	2,983,369	3,265,001	3,323,339	24,849	24,402	31,414
Dundas	1,127,713	1,283,012	1,380,115	6,596	5,579	9,237
Stormont	1,054,239	952,135	1,126,134	8,238	8,028	9,149
Glengarry	1,078,127	1,194,460	1,298,610	10,570	10,177	13,047
Prescott	1,362,306	1,173,375	1,263,331	10,029	9,676	9,975
Russell	710,807	702,589	720,781	8,331	8,370	7,448
Carleton	2,888,350	2,536,535	2,820,508	23,490	21,417	26,027
Renfrew	2,060,128	2,210,993	2,216,585	34,228	32,239	32,640
Lanark	2,024,714	2,254,732	2,084,271	33,001	33,209	30,834
Totals	17,893,991	18,988,107	19,817,596	187,123	179,482	200,788
Victoria	2,110,576	2,396,089	2,479,004	29,930	26,197	23,764
Peterborough	1,630,221	1,751,908	1,863,004	17,316	15,678	16,585
Haliburton	257,147	278,376	260,684	4,254	3,465	3,255
Hastings	2,661,815	2,689,146	2,919,389	22,680	22,729	22,880
Totals	6,659,759	7,115,519	7,522,081	74,180	68,069	66,484
Muskoka	541,547	571,380	547,531	7,294	6,736	6,297
Parry Sound	469,214	520,693	344,815	7,102	6,692	3,516
Nipissing	136,360	168,121	47,013	478	516	172
Algoma	645,952	764,252	512,520	10,951	9,749	5,448
Totals	1,793,073	2,024,446	1,451,879	25,825	23,693	15,433
The Province	101,886,557	110,562,493	114,533,844	1,073,234	1,027,154	1,033,916

VALUE PER ACRE—FALL WHEAT, SPRING WHEAT AND BARLEY.

TABLE XVIII. Showing by County Municipalities and groups of Counties the market value of crop per acre of Wheat and Barley in Ontario in 1892 and 1893, with the yearly average for the twelve years 1892-93.

Counties.	Fall Wheat.			Spring Wheat.			Barley.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Essex	10 78	10 32	16 65	7 54	5 97	12 78	9 54	9 46	13 10
Kent	12 34	13 15	17 13	8 32	7 73	13 01	8 74	10 70	13 94
Elgin	12 46	14 71	17 52	8 91	9 63	12 82	8 78	9 38	13 72
Norfolk	10 30	15 98	16 16	7 25	7 12	11 85	7 62	9 00	13 54
Haldimand	9 22	12 44	14 08	4 69	5 97	10 98	6 10	8 01	11 59
Welland	7 25	11 59	13 96	3 33	6 44	11 64	7 98	8 47	12 14
Group	10 89	13 16	16 23	6 81	6 98	12 17	7 98	9 22	12 80
Lambton	11 44	13 08	16 67	4 87	6 31	12 23	6 22	7 02	13 25
Huron	12 28	15 84	17 54	7 43	10 10	11 96	9 98	11 27	14 51
Bruce	10 54	15 20	17 16	6 83	8 95	11 99	9 18	11 56	13 89
Group	11 56	14 81	17 20	6 95	9 06	12 02	8 61	10 23	14 01
Grey	9 46	15 20	17 44	7 43	8 68	12 55	9 34	10 66	13 22
Simcoe	10 60	15 84	18 14	7 43	8 07	13 00	9 46	10 82	13 48
Group	10 30	15 67	17 92	7 43	8 31	12 77	9 42	10 77	13 38
Middlesex	11 74	16 12	17 79	6 89	8 14	12 42	8 22	9 38	13 92
Oxford	13 18	16 69	18 03	7 66	7 59	13 63	8 54	10 82	15 71
Brant	9 64	16 90	16 70	6 71	8 07	11 54	7 78	8 96	13 85
Perth	13 30	15 98	17 73	6 77	8 95	12 98	9 90	11 61	15 65
Wellington	12 52	16 47	17 77	7 90	9 97	12 98	10 07	11 19	14 84
Waterloo	13 12	18 10	18 31	7 07	9 76	12 71	9 70	13 17	15 86
Dufferin	10 30	16 97	17 17	8 43	7 32	12 57	9 82	10 33	13 33
Group	12 25	16 63	17 75	7 87	8 78	12 83	9 28	10 85	14 80
Lincoln	9 04	13 65	15 57	5 11	5 56	11 91	6 94	10 04	12 90
Wentworth	11 74	15 91	16 34	6 65	7 32	12 48	8 14	10 24	14 18
Halton	12 34	16 12	16 84	6 12	7 66	12 56	8 34	10 66	14 62
Peel	13 06	16 83	18 18	6 47	8 88	14 07	9 38	11 32	14 42
York	12 94	15 48	19 07	7 01	9 09	14 46	9 62	11 15	15 17
Ontario	11 50	15 77	19 52	6 36	6 92	14 27	8 74	10 24	14 77
Durham	11 74	14 00	17 71	5 70	5 76	13 84	7 94	10 61	13 90
Northumberland	11 02	14 42	17 00	4 28	6 71	11 71	5 89	9 00	11 79
Prince Edward	9 22	13 86	15 04	5 58	6 71	11 55	5 61	8 14	10 95
Group	11 75	15 40	17 41	5 96	7 29	13 57	8 10	10 22	13 66
Lennox and Addington	12 10	14 49	15 47	6 42	8 27	12 27	6 46	7 85	11 85
Frontenac	11 56	15 20	16 82	6 95	10 24	12 97	7 98	9 50	12 48
Leeds and Grenville	10 90	14 92	16 32	7 66	10 17	13 48	6 78	9 25	13 01
Dundas	13 06	18 81	17 59	7 66	10 78	15 75	8 50	9 42	15 74
Stormont	10 78	16 68	16 90	7 72	10 78	14 99	8 74	10 24	14 06
Glengarry	9 34	16 61	15 43	7 25	11 12	13 93	8 46	9 17	12 03
Prescott	9 58	.....	11 49	8 32	10 24	13 57	10 23	8 34	13 12
Russell	10 48	.....	16 87	6 53	10 03	14 59	8 46	8 84	12 58
Carleton	12 40	17 68	14 71	8 14	12 20	15 25	8 54	11 36	15 20
Renfrew	13 00	16 33	17 19	7 84	12 95	14 23	8 66	9 17	12 40
Lanark	12 16	17 04	17 21	8 55	11 87	13 08	7 78	9 83	13 21
Group	11 69	15 66	16 36	7 82	11 44	14 05	7 88	9 15	12 87
Victoria	11 86	15 55	17 49	5 94	6 92	12 75	8 06	9 95	13 30
Peterborough	11 56	13 50	16 88	4 87	6 92	11 39	7 38	9 46	12 84
Haliburton	9 82	13 08	14 33	6 36	8 68	11 21	8 18	7 84	12 38
Hastings	10 66	12 94	16 57	6 95	9 02	12 92	6 54	9 29	12 22
Group	11 14	13 48	16 91	5 76	7 28	12 27	7 42	9 63	12 73
Muskoka	10 78	11 31	15 24	7 78	9 49	13 02	7 38	8 05	10 86
Parry Sound	9 82	12 02	13 98	9 09	8 61	13 66	8 74	9 21	11 61
Nipissing	10 48	14 14	12 33	10 40	12 20	12 96	9 02	10 32	10 37
Algoma	14 02	18 81	18 59	9 68	10 78	16 83	9 66	11 98	13 19
Group	13 43	17 89	17 83	9 45	10 36	15 73	8 72	10 19	11 89
The Province	11 50	14 99	17 19	6 97	8 63	13 20	8 41	10 15	13 63

VALUE PER ACRE—OATS, RYE AND PEAS.

TABLE XIX. Showing by County Municipalities and groups of Counties the market value of crop per acre of Oats, Rye and Peas in Ontario in 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Oats.			Rye.			Peas.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Essex	10 69	9 18	12 83	7 78	8 93	11 12	9 99	10 92	11 30
Kent	10 23	11 58	13 70	8 65	9 37	11 62	8 32	8 38	11 30
Elgin	9 86	9 39	12 97	8 03	7 70	9 86	9 02	7 43	10 86
Norfolk	7 93	9 33	11 14	6 18	8 09	8 08	7 13	9 68	11 20
Haldimand	8 37	8 56	10 91	7 12	8 54	9 58	8 32	8 08	10 43
Welland	6 91	7 64	10 60	5 42	8 48	9 49	8 64	9 38	10 10
Group	9 33	9 50	12 24	7 02	8 24	8 93	8 13	8 68	10 89
Lambton	7 80	8 75	12 18	8 08	7 98	9 55	8 59	7 20	10 01
Huron	11 99	12 26	13 10	6 41	10 77	10 35	11 88	12 68	13 60
Bruce	10 29	11 52	11 68	6 51	7 09	10 39	11 77	12 63	13 88
Group	10 47	11 21	12 41	6 84	9 27	10 18	11 71	12 26	13 45
Grey	10 59	11 27	11 47	7 55	10 04	10 13	11 77	10 03	13 01
Simcoe	10 59	11 15	12 09	6 70	9 21	10 49	11 88	12 80	13 24
Group	10 59	11 22	11 73	6 94	9 45	10 42	11 82	11 28	13 11
Middlesex	9 93	10 50	13 20	7 03	11 16	10 17	10 42	7 26	11 59
Oxford	10 99	11 70	13 56	7 74	8 76	9 07	10 04	8 85	12 43
Brant	8 50	9 70	12 50	6 08	8 04	8 44	7 40	9 74	11 81
Perth	12 72	12 26	14 47	9 12	6 86	8 51	11 12	10 15	13 45
Wellington	11 55	12 04	13 17	8 50	9 88	10 32	10 37	11 15	13 43
Waterloo	10 69	12 23	13 26	9 03	11 72	10 45	10 26	14 22	13 70
Dufferin	11 85	11 92	12 28	6 18	13 00	10 67	11 66	10 86	12 62
Group	11 17	11 61	13 35	7 65	9 38	9 59	10 34	10 41	12 86
Lincoln	8 20	10 93	11 40	7 13	11 27	9 10	9 34	12 09	10 76
Wentworth	9 56	10 78	12 59	6 65	9 15	10 09	9 88	10 68	12 09
Halton	10 23	11 33	12 63	6 93	8 59	9 84	10 42	10 91	12 76
Peel	11 49	12 54	13 38	7 93	8 65	11 47	10 69	13 16	12 57
York	11 25	12 66	14 19	7 32	8 82	9 97	12 04	11 21	13 37
Ontario	10 79	11 92	13 45	7 55	8 87	10 41	10 58	11 80	12 62
Durham	10 76	10 72	12 51	6 37	7 59	8 98	10 21	13 16	12 09
Northumberland	8 03	8 96	10 44	6 13	7 03	7 78	9 61	12 39	10 91
Prince Edward	6 61	8 04	9 73	6 08	8 37	8 20	7 78	11 27	10 74
Group	10 23	11 31	12 74	6 44	7 89	8 65	10 30	11 97	12 18
Lennox and Addington	7 27	8 10	9 89	6 65	8 09	8 77	8 48	9 62	11 10
Frontenac	8 57	8 53	10 11	6 22	7 76	9 65	9 02	9 85	11 05
Leeds and Grenville	8 47	8 75	11 00	6 70	9 65	10 61	9 40	8 91	11 67
Dundas	9 89	10 72	12 45	8 08	12 56	13 51	10 58	8 50	13 28
Stormont	9 20	10 84	12 14	7 36	11 88	12 43	7 56	6 25	12 22
Glengarry	9 16	10 32	11 28	7 13	8 37	9 43	6 86	4 90	10 73
Prescott	9 40	9 36	10 90	7 13	11 72	10 35	9 72	4 07	10 14
Russell	6 44	9 24	11 19	7 12	10 77	12 58	7 78	5 49	11 64
Carleton	8 73	10 81	12 43	7 08	9 21	10 70	9 18	9 56	13 02
Renfrew	10 29	10 81	11 37	7 55	10 16	11 09	9 50	11 92	12 49
Lanark	9 23	10 41	11 16	8 50	10 43	11 40	9 07	10 09	12 80
Group	8 90	9 87	11 36	7 16	9 63	10 61	9 03	9 42	11 91
Victoria	9 93	11 33	11 86	6 18	10 10	10 04	9 72	12 04	12 47
Peterborough	9 13	9 70	10 93	6 79	8 59	8 88	10 85	11 68	11 90
Haliburton	8 43	8 01	9 64	6 84	8 31	9 88	8 64	10 15	11 30
Hastings	8 60	8 90	10 31	7 03	7 59	9 11	8 86	10 80	10 98
Group	9 22	9 92	10 98	6 88	8 12	9 14	9 75	11 45	11 74
Muskoka	9 53	9 21	10 31	7 84	8 20	10 82	9 23	9 91	12 39
Parry Sound	9 59	9 27	10 44	7 88	13 95	12 55	11 34	11 98	12 77
Nipissing	10 23	11 30	11 37	7 13	8 38	11 00	13 72	12 80	13 36
Algoma	10 62	11 73	12 11	6 17	13 28	10 27	14 96	16 05	15 67
Group	9 91	10 07	10 84	7 47	11 84	11 29	12 62	13 39	14 02
The Province	10 04	10 71	12 22	6 90	8 65	9 51	10 36	11 04	12 43

VALUE PER ACRE—CORN, BUCKWHEAT AND BEANS.

TABLE XX. Showing by County Municipalities and groups of Counties the market value of crop per acre of Corn, (for Husking and Silo and the average for the two) Buckwheat and Beans in Ontario in 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Corn.					Buckwheat.			Beans.		
	Husking.	Silo.	Average.								
			1893.	1892.	1882-93.	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Essex	20 17	15 22	20 02	14 76	20 68	7 82	8 82	8 70	19 59	15 51	21 58
Kent	19 50	17 28	19 45	17 51	20 36	7 48	7 72	8 16	14 99	15 02	18 48
Elgin	19 11	21 82	19 37	16 04	20 28	7 36	9 03	8 10	16 40	16 60	21 03
Norfolk	15 16	21 86	15 86	18 08	17 96	6 98	7 72	7 42	20 06	18 48	18 15
Haldimand	15 66	13 90	15 16	13 08	17 05	7 98	6 75	6 94	13 57	15 81	18 66
Welland	16 99	22 46	17 75	16 07	17 57	5 18	7 05	7 54	14 75	13 44	15 25
Group	18 99	19 49	19 02	16 28	19 86	6 86	8 00	7 69	15 36	15 14	18 63
Lambton	14 07	20 22	14 74	15 05	17 30	6 52	5 65	7 40	15 22	12 65	17 65
Huron	16 06	23 44	21 44	20 93	19 18	6 90	11 65	7 88	25 96	17 30	25 03
Bruce	15 90	20 70	19 73	24 76	17 41	6 18	11 52	7 34	17 35	19 76	19 42
Group	14 30	21 88	16 72	17 68	17 67	6 55	8 92	7 50	16 26	13 72	19 15
Grey	12 67	18 98	17 35	19 95	15 69	7 11	10 13	7 24	18 64	24 70	20 23
Simcoe	13 65	23 66	20 30	26 38	19 53	6 59	9 71	7 45	21 59	19 76	19 52
Group	13 28	21 47	19 00	23 40	17 81	6 81	9 83	7 37	20 29	22 44	19 90
Middlesex	16 75	20 54	17 65	17 12	19 15	9 03	8 23	7 34	14 40	18 47	18 74
Oxford	15 42	24 52	19 33	18 16	18 11	6 98	7 55	7 10	18 64	19 07	24 51
Brant	14 81	21 68	16 34	18 12	19 30	7 73	7 93	7 41	11 80	14 83	17 26
Perth	14 84	23 64	22 20	21 64	19 67	8 36	9 50	8 35	17 70	19 73	26 55
Wellington	15 21	22 52	21 21	23 43	19 08	8 90	9 50	8 77	14 16	19 77	17 51
Waterloo	15 37	24 42	20 87	21 55	19 27	6 81	6 33	6 93	14 16	19 75	18 24
Dufferin	12 93	24 00	17 46	16 12	14 70	8 15	8 44	8 42	14 75	.....	21 63
Group	15 98	22 83	18 60	18 59	18 86	8 08	7 86	7 48	15 21	18 72	19 78
Lincoln	18 07	21 96	18 61	18 17	18 11	5 81	7 30	8 05	14 51	13 24	20 18
Wentworth	19 29	21 34	20 35	20 56	20 76	8 74	9 75	8 33	18 88	19 76	21 87
Halton	18 82	22 02	20 82	14 58	18 43	9 74	9 49	6 73	23 60	19 80	18 54
Peel	15 90	23 42	21 24	17 83	18 74	4 60	5 91	6 76	23 60	19 75	25 24
York	11 26	19 28	17 84	16 33	18 12	8 11	9 83	8 18	27 61	18 58	24 74
Ontario	11 77	23 08	17 96	18 75	16 97	7 52	10 21	9 00	14 63	21 04	20 95
Durham	14 10	22 72	17 58	17 85	15 96	7 48	9 50	8 76	17 23	18 77	19 66
Northumberland	12 72	25 12	17 41	17 43	16 04	8 07	8 82	8 47	17 35	16 01	20 51
Prince Edward	11 85	19 78	13 97	14 72	13 99	6 86	8 02	8 44	21 95	20 75	22 33
Group	14 84	21 97	17 86	17 47	17 14	7 51	8 76	8 48	18 16	17 91	21 20
Lennox and Addington	11 55	16 66	14 59	18 83	16 08	7 65	7 55	8 89	25 90	19 16	23 72
Frontenac	13 65	19 02	16 80	18 01	16 34	7 11	9 66	9 01	18 88	15 61	26 65
Leeds and Grenville	16 38	20 30	18 33	17 87	19 14	6 90	6 88	8 22	16 28	16 20	22 37
Dundas	16 77	20 50	18 80	18 76	19 52	9 15	9 83	10 33	25 49	17 19	26 17
Stormont	17 49	27 88	22 71	21 24	19 34	8 86	6 75	9 31	25 25	15 62	28 26
Glengarry	15 45	24 52	22 60	21 67	19 04	8 53	6 08	8 39	19 47	19 76	22 22
Prescott	19 05	26 62	21 39	18 26	18 32	9 70	6 67	7 80	22 42	15 71	28 63
Russell	10 07	31 14	27 18	27 44	20 85	9 36	8 44	9 19	20 65	17 29	21 68
Carleton	10 41	22 96	20 64	21 72	17 95	7 98	9 28	8 43	21 36	22 13	23 89
Renfrew	13 52	23 92	19 13	20 80	16 71	7 86	10 89	8 60	20 06	22 03	23 53
Lanark	15 77	23 00	20 96	19 89	16 33	7 94	7 60	8 19	22 66	18 77	26 98
Group	15 59	22 27	19 54	19 53	18 24	7 89	8 02	8 61	20 98	18 92	24 91
Victoria	15 37	17 26	16 07	21 24	17 85	5 52	9 16	7 50	13 81	23 51	20 88
Peterborough	18 55	21 64	20 78	18 21	16 69	7 69	7 76	8 03	13 81	16 80	18 33
Haliburton	18 71	12 50	17 21	20 29	14 88	6 65	8 90	7 42	18 05	17 78	20 71
Hastings	13 91	20 62	16 53	18 15	15 61	7 82	9 28	8 63	15 81	19 86	20 68
Group	14 31	20 68	17 05	18 38	15 85	7 02	9 00	8 25	15 39	20 32	20 20
Muskoka	11 47	18 22	13 87	12 48	11 25	7 94	10 68	9 70	18 53	14 81	20 02
Parry Sound	10 60	14 00	11 63	16 90	12 52	7 32	9 50	7 92	17 70	12 39	20 55
Nipissing	9 94	.....	9 94	13 14	12 88	8 36	4 22	8 78	20 65	15 81	20 64
Algoma	11 93	16 00	13 30	12 77	13 74	7 11	12 66	9 32	23 60	21 74	23 05
Group	11 20	17 09	13 08	13 73	12 01	7 63	10 52	9 20	19 65	17 46	20 79
The Province	17 16	21 90	18 61	17 78	18 75	7 44	8 50	8 33	16 04	15 93	19 66

VALUE PER ACRE—POTATOES, MANGEL WURZELS AND CARROTS.

TABLE XXI. Showing by County Municipalities and groups of Counties the market value per acre of Potatoes, Mangel-wurzels and Carrots in Ontario in the years 1892 and 1893 with the yearly average for twelve years 1882-93.

Counties.	Potatoes.			Mangel-wurzels.			Carrots.		
	1893.	1892.	1882-93	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Essex	31 40	29 03	43 28	35 84	33 12	32 74	43 00	30 38	32 43
Kent	31 48	38 56	54 79	31 56	31 20	33 12	42 13	36 12	37 12
Elgin	34 84	30 44	43 90	33 04	35 36	33 86	45 50	41 13	41 52
Norfolk	31 32	36 54	46 32	35 12	33 52	32 05	47 13	36 38	36 69
Haldimand	35 55	26 61	46 39	33 60	22 56	26 57	30 25	35 38	32 75
Welland	37 13	38 00	42 15	31 68	37 12	33 70	42 25	46 00	36 48
Group	33 31	33 62	46 49	34 08	32 15	32 30	42 91	37 46	36 85
Lambton	23 54	21 27	42 13	28 08	34 80	32 21	33 25	30 25	36 51
Huron	38 91	50 40	55 06	35 52	42 16	37 32	41 75	48 00	48 23
Bruce	31 68	42 08	51 45	29 60	43 12	34 16	41 63	66 25	43 23
Group	32 46	39 99	50 66	32 90	41 35	35 87	39 13	49 40	44 19
Grey	36 14	39 92	55 88	30 08	39 84	34 77	40 88	52 62	46 04
Simcoe	40 57	50 80	55 24	31 44	38 08	32 86	42 75	45 38	45 28
Group	38 59	45 76	55 55	30 78	38 86	33 62	41 91	49 15	45 64
Middlesex	34 44	25 05	46 53	27 92	31 04	34 73	36 00	36 13	40 78
Oxford	36 06	35 99	48 58	33 52	39 68	37 87	43 25	56 63	50 34
Brant	36 50	38 86	48 77	31 68	33 52	39 28	41 38	44 50	51 65
Perth	37 37	40 22	50 63	32 56	33 68	37 16	49 75	45 00	48 48
Wellington	43 37	53 93	55 60	36 24	42 16	36 24	47 13	56 25	43 52
Waterloo	42 78	48 38	54 21	36 08	39 36	35 33	49 37	56 50	51 95
Dufferin	49 41	50 60	62 10	34 80	48 00	33 84	41 38	47 88	42 54
Group	39 98	42 48	52 25	32 45	36 62	36 53	42 96	48 95	46 73
Lincoln	35 19	36 09	42 82	34 80	34 48	31 96	41 00	46 25	40 36
Wentworth	44 52	43 39	52 35	34 72	39 44	38 96	50 75	59 88	47 16
Halton	44 91	35 94	48 70	35 84	34 64	37 31	39 00	45 12	48 74
Peel	35 83	45 16	45 98	29 04	41 52	32 21	37 50	49 00	43 04
York	36 54	45 96	46 54	33 60	38 24	36 33	35 08	52 63	50 60
Ontario	39 74	54 89	54 08	31 52	44 16	35 24	41 38	52 87	48 49
Durham	44 36	53 12	56 45	39 76	42 64	36 63	52 25	61 13	47 72
Northumberland	38 67	65 52	49 52	30 88	40 96	34 86	39 25	51 75	43 09
Prince Edward	28 08	30 59	40 67	13 28	28 00	22 17	15 63	45 87	27 18
Group	38 69	48 31	49 02	32 78	39 47	35 63	40 86	52 92	46 75
Lennox and Addington	29 15	34 07	49 50	30 00	29 36	28 19	50 00	30 87	36 77
Frontenac	32 82	37 14	45 13	30 48	34 00	28 97	36 38	47 50	33 52
Leeds and Grenville	31 32	29 38	50 54	28 32	28 56	32 76	34 50	47 87	39 85
Dundas	21 25	24 70	59 90	20 80	38 40	33 62	33 50	65 63	49 51
Stormont	21 49	20 87	51 83	30 64	22 41	29 94	41 63	37 25	36 85
Glengarry	18 21	23 59	48 45	19 28	34 40	28 65	34 00	38 75	33 63
Prescott	31 84	27 22	54 47	19 37	29 04	29 13	38 37	39 12	36 26
Russell	29 23	31 90	45 96	35 04	27 20	30 41	42 25	36 00	40 15
Carleton	21 53	33 62	55 93	25 52	28 00	29 68	41 12	38 37	40 72
Renfrew	36 81	56 70	66 49	25 52	31 20	28 88	28 50	40 13	37 61
Lanark	35 63	51 61	61 84	30 48	33 84	32 05	36 38	42 25	42 42
Group	28 99	35 13	53 97	27 77	30 46	30 31	37 42	43 98	39 57
Victoria	41 95	51 00	57 61	28 16	50 00	38 68	32 37	64 00	46 44
Peterborough	46 18	50 85	53 73	32 08	33 68	30 45	40 62	58 88	42 87
Haliburton	38 87	67 33	60 87	36 00	26 00	30 00	39 10	39 11	37 48
Hastings	35 79	46 97	53 43	24 16	34 88	27 89	35 88	37 88	36 12
Group	40 12	50 12	54 99	27 85	42 20	33 18	37 98	55 92	42 50
Muskoka	35 79	59 67	60 85	25 93	26 96	22 24	34 13	44 75	35 51
Parry Sound	44 91	76 66	68 08	40 00	44 00	26 00	32 75	42 25	34 09
Nipissing	49 38	84 02	63 65	32 00	32 00	31 00	31 25	37 50	33 67
Algoma	53 60	83 87	78 11	32 00	20 00	23 39	31 25	37 50	32 77
Group	45 23	74 20	67 43	30 88	27 96	23 16	32 90	42 27	34 53
The Province	35 76	42 51	52 13	31 91	37 59	34 92	39 99	48 13	43 93

VALUE PER ACRE—TURNIPS, HAY AND ALL FIELD CROPS.

TABLE XXII. Showing by County Municipalities and groups of Counties the market value per acre of Turnips, Hay and Clover and all field crops in Ontario in the years 1892 and 1893, with the yearly average for the twelve years 1882-93.

Counties.	Turnips.			Hay and clover.			All field crops.		
	1893.	1892.	1882-93.	1893.	1892.	1882-93.	1893.	1892.	1882-93.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Essex	34 00	24 70	28 22	14 36	12 05	16 01	14 38	11 72	16 80
Kent	29 30	34 50	34 57	14 21	14 35	15 64	13 88	13 95	16 89
Elgin	40 10	33 50	36 20	14 29	15 74	15 48	13 41	13 63	16 02
Norfolk	40 30	37 30	38 37	14 06	13 61	13 72	11 61	13 57	14 37
Haldimand	34 40	32 80	29 97	11 92	14 10	12 88	10 22	11 68	12 82
Welland	39 00	33 30	34 30	12 45	14 84	13 74	11 09	12 87	13 79
Group	37 74	34 27	35 69	13 52	14 26	14 56	12 68	13 00	15 33
Lambton	24 00	42 60	32 50	13 45	14 51	14 96	11 44	12 16	14 87
Huron	39 40	47 30	41 02	13 83	15 33	14 46	13 69	15 26	15 83
Bruce	34 20	59 60	41 98	12 30	14 10	13 05	12 21	14 72	14 84
Group	36 20	53 06	41 22	13 19	14 69	14 07	12 64	14 35	15 26
Grey	36 10	47 80	41 40	12 84	14 43	13 00	12 69	13 90	14 49
Simcoe	36 60	46 40	42 21	12 91	13 20	13 60	12 38	13 81	15 28
Group	36 28	47 29	41 64	12 87	13 93	13 24	12 54	13 86	14 86
Middlesex	35 20	41 70	37 89	15 81	14 84	15 83	13 46	13 83	16 08
Oxford	47 80	50 50	44 86	15 36	16 73	16 12	14 53	15 65	16 86
Brant	45 80	42 90	46 14	14 67	16 89	15 01	12 42	15 13	16 15
Perth	40 50	48 10	40 92	15 36	16 07	15 90	14 54	15 07	16 74
Wellington	44 30	52 50	44 22	15 89	16 07	15 58	14 77	15 81	16 73
Waterloo	45 20	52 50	42 02	14 82	16 89	15 71	13 98	16 97	17 12
Dufferin	47 50	47 70	41 24	13 98	12 79	13 78	13 51	13 00	15 05
Group	44 25	49 71	43 19	15 34	15 74	15 59	14 03	15 07	16 46
Lincoln	40 90	38 50	36 14	12 99	15 50	13 82	11 77	14 26	14 40
Wentworth	42 50	56 50	47 77	12 61	18 12	14 89	13 02	16 36	16 20
Halton	46 90	42 50	45 08	14 52	16 24	13 87	13 51	14 44	15 34
Peel	46 00	50 50	40 28	15 43	15 66	14 59	13 04	14 45	15 52
York	42 50	45 70	41 21	13 52	15 83	14 28	13 08	14 47	16 22
Ontario	49 20	51 70	43 48	14 36	14 10	14 49	13 60	14 46	16 44
Durham	50 40	55 00	45 23	13 37	12 55	14 05	12 20	12 83	15 01
Northumberland	39 60	52 90	41 21	12 84	12 38	12 70	10 78	12 54	13 12
Prince Edward	21 90	40 00	24 62	11 77	13 37	13 29	9 21	10 98	11 91
Group	46 36	51 28	43 43	13 51	14 87	14 02	12 37	13 85	15 09
Lennox and Addington	30 60	34 00	26 72	12 38	14 51	12 53	10 73	12 01	12 64
Frontenac	34 70	40 90	29 72	13 68	14 19	12 45	11 94	12 68	12 93
Leeds and Grenville	32 40	37 50	36 56	12 38	14 92	13 14	11 68	12 94	13 81
Dundas	30 30	52 50	32 18	14 90	16 40	15 79	12 83	13 97	15 87
Stormont	27 00	22 48	27 55	14 67	12 30	15 50	12 69	11 97	15 17
Glengarry	26 40	54 20	40 77	12 22	14 02	15 72	11 28	12 52	14 54
Prescott	33 80	35 40	37 58	15 51	13 45	14 95	13 43	11 58	14 22
Russell	50 00	45 80	42 70	15 97	14 35	14 03	13 05	12 78	14 13
Carleton	37 10	37 20	36 88	16 43	12 30	13 92	12 72	12 66	15 14
Renfrew	31 40	37 10	33 93	11 99	10 25	10 93	11 20	12 35	13 21
Lanark	37 50	40 30	37 45	13 37	13 45	13 60	12 10	13 10	13 99
Group	36 44	39 56	35 84	13 63	13 63	13 51	12 01	12 63	14 01
Victoria	36 80	51 70	39 62	13 60	12 30	12 06	11 34	12 40	14 06
Peterborough	42 90	46 50	39 12	11 69	11 64	11 35	11 18	11 70	12 98
Haliburton	33 80	31 30	29 08	11 92	10 74	10 75	11 35	11 76	12 50
Hastings	38 90	37 10	31 27	13 60	11 81	12 54	11 71	11 93	13 13
Group	38 82	47 35	37 71	13 08	11 81	12 02	11 45	12 00	13 36
Muskoka	30 90	36 60	32 04	13 29	12 46	12 41	12 67	13 24	14 09
Parry Sound	25 50	30 70	31 00	11 99	12 30	11 47	12 40	13 78	14 08
Nipissing	25 00	32 50	32 50	11 77	12 30	11 60	13 23	16 33	14 89
Algoma	38 80	40 70	35 31	13 68	15 42	13 16	13 95	16 22	16 18
Group	30 24	35 37	32 49	12 91	13 28	12 34	13 07	14 63	14 78
The Province	41 71	49 02	41 83	13 71	14 29	14 00	12 65	13 68	15 05

FARM WAGES.

TABLE XXIII. Showing by County Municipalities and groups of Counties the average wages of Farm Laborers and Domestic Servants in Ontario in 1892 and 1893.

Counties.	Farm laborers.								Domestics per month with board.	
	Per year—				Per month in working season—					
	With board.		Without brd.		With board.		Without board.			
	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.
	$	$	$	$	$ c.	$ c.	$ c.	$ c	$ c.	$ c.
Essex	155	152	278	252	15 63	16 32	26 56	26 76	6 00	6 61
Kent	168	170	267	262	17 81	17 04	26 00	25 63	6 93	6 54
Elgin	156	169	269	260	17 34	16 91	25 82	25 25	7 04	6 44
Norfolk	155	158	238	239	15 87	15 14	24 42	23 43	5 76	5 93
Haldimand	157	155	263	256	16 39	17 66	25 88	24 43	6 76	6 06
Welland	147	151	246	259	17 65	17 15	27 64	26 81	6 85	6 52
Group	155	159	259	256	16 84	16 75	26 06	25 62	6 53	6 36
Lambton	183	166	296	253	17 29	17 14	25 90	28 50	7 32	6 66
Huron	158	156	254	250	17 70	16 49	27 78	27 19	6 29	6 06
Bruce	161	149	256	262	17 43	17 01	26 92	26 52	6 11	6 25
Group	165	156	265	254	17 50	16 94	26 84	27 25	6 41	6 28
Grey	164	152	261	247	16 71	15 87	25 65	26 18	6 39	5 90
Simcoe	147	149	255	272	16 94	16 65	26 50	25 57	6 17	6 21
Group	158	151	259	260	16 81	16 30	25 92	25 78	6 30	6 07
Middlesex	155	152	240	240	17 21	16 72	25 73	25 55	6 70	6 73
Oxford	163	157	239	245	17 18	16 61	25 12	24 46	6 62	6 27
Brant	161	161	249	250	16 10	16 25	26 25	25 30	7 50	6 40
Perth	154	151	246	265	17 17	16 10	26 40	26 13	6 34	6 56
Wellington	164	163	220	252	16 96	16 75	25 60	25 36	6 63	6 34
Waterloo	158	151	265	258	16 20	15 66	27 20	26 00	6 42	6 20
Dufferin	149	146	235	250	17 42	16 05	27 00	25 00	5 82	6 31
Group	159	154	242	252	16 97	16 38	25 87	25 49	6 56	6 41
Lincoln	159	157	260	255	17 06	16 91	26 00	26 93	6 33	6 20
Wentworth	159	156	240	248	17 42	16 79	24 62	25 07	7 13	6 87
Halton	169	160	273	248	17 79	16 91	27 33	27 18	7 59	7 31
Peel	161	152	272	280	18 38	17 64	26 00	28 50	7 35	7 85
York	177	162	264	256	17 84	17 09	27 57	27 81	6 60	6 34
Ontario	173	164	257	251	16 45	16 85	27 25	26 55	6 42	6 22
Durham	161	156	266	250	17 13	15 71	25 17	25 75	6 94	6 30
Northumberland	157	156	250	253	16 03	15 70	24 40	25 15	5 75	5 86
Prince Edward	155	155	244	229	15 25	15 15	22 85	23 74	6 41	5 33
Group	164	158	256	252	17 04	16 57	25 33	26 22	6 72	6 42
Lennox and Addington	145	143	265	234	17 04	15 35	24 86	22 89	5 60	5 24
Frontenac	152	147	250	245	16 93	16 31	25 56	23 87	6 54	5 97
Leeds and Grenville	167	149	248	241	17 43	15 94	27 10	23 00	6 75	6 43
Dundas	156	154	239	225	16 19	15 14	25 00	25 40	7 45	6 36
Stormont	143	152	263	235	17 46	16 26	26 14	25 21	6 40	5 68
Glengarry	144	138	248	215	16 53	15 35	24 67	25 08	6 40	5 75
Prescott	147	159	248	251	17 85	16 84	25 17	26 22	5 42	4 92
Russell	167	164		260	17 35	16 00	28 00	25 83	5 50	5 18
Carleton	157	159	250	246	15 94	15 60	25 00	27 17	6 75	6 42
Renfrew	171	165	254	290	17 48	16 19	26 00	26 54	5 97	5 58
Lanark	160	147	255	259	17 64	16 83	28 00	25 17	6 57	5 96
Group	156	152	252	242	17 09	15 99	25 91	24 60	6 31	5 83
Victoria	161	159	287	269	17 95	16 64	26 00	28 20	5 53	5 84
Peterborough	172	173	249	249	17 33	16 76	26 10	26 36	7 38	6 21
Haliburton	171	151		253	18 75	16 09	25 50	26 83	5 38	5 42
Hastings	144	144	240	253	16 51	15 79	25 20	25 05	6 08	5 51
Group	158	154	250	256	17 32	16 31	25 70	26 28	6 10	5 76
Muskoka	192	158	310	250	18 75	18 49	25 75	26 71	6 42	6 07
Parry Sound	161	166	250	253	19 00	17 54	26 33	26 69	6 09	6 03
Nipissing	200	173	311	321	19 78	18 32	30 25	29 27	7 71	7 00
Algoma	190	176	283	291	19 56	19 43	26 92	30 23	5 78	5 94
Group	185	166	295	270	19 23	18 41	27 00	28 13	6 29	6 16
The Province	160	156	255	253	17 13	16 52	25 97	25 92	6 47	6 21

TWELFTH ANNUAL REPORT

OF THE

BUREAU OF INDUSTRIES.

PARTS IV AND V.

1893.

To the Honorable John Dryden, Minister of Agriculture:

Sir,—I have the honor to present herewith Parts iv and v of the twelfth annual report of the Bureau of Industries, being a statement of the affairs of Loan and Investment Companies and a return by County Court Clerks of Chattel Mortgages on record in Ontario for the year ending Dec. 31, 1893.

I have the honor to be, Sir,

Your obedient servant,

C. C. JAMES,
Secretary.

Toronto, Aug 3, 1894.

CONTENTS.

PART IV.

LOAN AND INVESTMENT COMPANIES OF ONTARIO.

STATEMENT OF AFFAIRS.

The following report contains the returns made by 86 companies doing business in Ontario. The ten companies making returns for the first time were as follows:

Ontario Permanent Building and Loan Association ..... Woodstock, Ont.
The Birkbeck Loan Company ..... London, Ont.
The Peoples' Building and Loan Association ..... London, Ont.
Credit Foncier Franco-Canadian ..... Toronto, Ont.
Equitable Savings, Loan and Building Association ..... Toronto, Ont.
Globe Savings and Loan Company ..... Toronto, Ont.
House and Land Investment Company ..... Toronto, Ont.
Provincial Building and Loan Association ..... Toronto, Ont.
Toronto Land and Investment Corporation ..... Toronto, Ont.
Trusts Corporation of Ontario ..... Toronto, Ont.

In addition we have been notified of the incorporation of the three following. No financial statements are given in this report since they had not completed a year's work up to December 31st, 1893:

Birkbeck Investment Society and Savings Company ..... Toronto, Ont.
Aid Savings and Loan Company ..... Toronto, Ont.
Home Savings and Security Company ..... Owen Sound, Ont.

The following table shows the capital subscribed, the assets and liabilities of the eighty-six companies for 1893, and for comparison, similar totals are given for the previous six years:

Location of head office of company.	No of Companies.	Capital subscribed	Liabilities to stock-holders.	Liabilities to the public.	Total liabilities or assets.	Secured loan assets.	Property assets.
		$		$	$	$	$
Hamilton	4	3,022,829	2,464,528	3,322,875	5,787,403	5,459,699	327,704
Kingston	2	450,000	516,128	495,409	1,011,537	801,261	210,276
London	9	10,987,300	7,900,724	10,584,684	18,485,408	17,129,466	1,355,942
Ottawa	3	705,800	506,006	34,432	540,438	520,544	19,894
Owen Sound	2	533,450	194,967	84,939	279,906	279,216	690
St. Thomas	5	2,436,950	1,368,131	1,095,882	2,464,013	2,424,581	39,432
Sarnia	3	1,114,200	1,347,449	1,253,752	2,601,201	2,523,359	77,842
Stratford	2	623,800	434,057	555,771	989,828	984,648	5,180
Toronto	40	61,847,356	29,163,890	59,474,534	88,638,424	77,196,834	11,441,590
Woodstock	2	394,300	279,699	142,884	422,583	403,162	19,421
Other places	14	6,467,000	5,110,245	7,871,502	12,981,747	10,318,145	2,663,602
Totals, 1893	86	88,582,985	49,285,824	84,916,664	134,202,488	118,040,915	16,161,573
1892	76	80,278,277	45,893,742	77,727,428	123,621,170	109,251,079	14,370,091
1891	71	76,152,817	44,379,397	72,757,149	117,136,546	104,365,025	12,771,521
1890	67	70,672,710	42,673,552	65,544,199	108,217,751	98,111,032	10,106,719
1889	71	69,694,221	41,629,987	62,967,156	104,597,143	94,666,887	9,930,256
1888	64	67,939,559	40,108,161	59,540,175	99,648,336	89,042,190	10,606,146
1887	55	56,114,310	35,910,563	51,177,104	87,087,667	79,035,804	8,051,863

LOAN AND INVESTMENT COMPANIES.

List of companies reporting Statement of affairs as required by Vict. 54, chapter 38, section 23.

Name of Company.	When organized.	President.	Manager.	Head Office.	For the year ending—
Barrie Loan and Savings Company	April 14, [illegible]	N. Dyment	Robert Laidlaw	Barrie	Dec. 31, 1893.
Hastings Loan and Investment Society	January, [illegible]	Hon. Mackenzie Bowell	J. P. C. Phillips	Belleville	Dec. 31, 1893.
Royal Loan and Savings Company	June 1, 1876	T. S. Shenston	R. S. Schell	Brantford	Dec. 31, 1893.
Brockville Loan and Savings Company	July 1, 1885	D. B. Jones	G. H. Weatherhead	Brockville	Dec. 31, 1893.
Chatham Loan and Savings Company	Sept. 28, 1881	Archibald Bell	S. F. Gardiner	Chatham	Dec. 31, 1893.
East Lambton Farmers' Loan and Savings Company	Dec. 16, 1891	James Hutton, M.D	W. Lemon	Forest	Feb. 28, 1894.
Huron and Bruce Loan and Investment Company	April 17, 1885	J. H. Colborne	Horace Horton	Goderich	Dec. 31, 1893.
Guelph and Ontario Investment and Savings Society	 1876	David Stirton	William Ross	Guelph	Dec. 31, 1893.
Hamilton Homestead Loan and Savings Society	Jan. 1, 1885	James E. O'Reilly	I. A. Studdart	Hamilton	Dec. 31, 1893.
Hamilton Mutual Building Society	Dec. 1, 1890	Alfred Ward	Walter Anderson	Hamilton	Nov. 30, 1893.
Hamilton Provident and Loan Society	September, 1871	George H. Gillespie	H. D. Cameron	Hamilton	Dec. 31, 1893.
Landed Banking and Loan Company	February, 1877	Matthew Leggat	C. W. Cartwright	Hamilton	Dec. 31, 1893.
Frontenac Loan and Investment Society	December, 1863	Sir R. J. Cartwright	Thomas Briggs	Kingston	Dec. 30, 1893.
Ontario Building and Savings Society	June 26, 1874	C. V. Price	James McArthur	Kingston	Dec. 31, 1893.
Agricultural Savings and Loan Company	May, 1872	Daniel Regan	W. A. Lipsey	London	Dec. 31, 1893.
Birkbeck Loan Company	Feb. 11, 1893	R. J. C. Dawson	Thomas Henry Luscombe	London	Dec. 31, 1893.
Canadian Savings and Loan Company	October, 1875	Robert Fox	Hiram W. Blinn	London	May 31, 1893.
Dominion Savings and Investment Society	April, 1872	Robert Reid	H. E. Nelles	London	Dec. 31, 1893.
Huron and Erie Loan and Savings Company	 1864	John W. Little	George A. Somerville	London	Dec. 31, 1893.
London Loan Company	 1877	Thomas Kent	Malcolm John Kent	London	Dec. 31, 1893.
Ontario Investment Association	April, 1880	John Wright	A. T. McMahon	London	Dec. 31, 1893.
Ontario Loan and Debenture Company	 1870	Joseph Jeffery	William F. Bullen	London	Dec. 31, 1893.
Peoples' Building and Loan Association	June 17, 1892	W. M. Spencer	A. A. Campbell	London	Aug. 31, 1893.
Orangeville Building and Loan Association	 1873	F. C. Stewart	Francis Irwin	Orangeville	Dec 31, 1893.
Ontario Loan and Savings Company	February, 1873	W. F. Cowan	T. H. McMillan	Oshawa	Dec. 31, 1893.
Home Building and Savings Association	September, 1880	John R. Armstrong	C. A. Douglas	Ottawa	Aug. 31, 1893.
Metropolitan Loan and Savings Company	August, 1870	H. V. Noel	C. R. Cunningham	Ottawa	Dec. 31, 1893.
Ottawa Building and Loan Society	June 6, 1884	A. Smirle	C. A. Douglas	Ottawa	May 31, 1893.
Owen Sound, Grey and Bruce Loan and Savings Company	April 15, 1889	William Roy	W. P. Telford	Owen Sound	Dec. 31, 1893.
Owen Sound Building and Savings Society	April 1, 1889	George Inglis	Alfred J. Spencer	Owen Sound	Oct. 31, 1893.
Central Canada Loan and Savings Company	April 1, 1884	George A. Cox	Fred. G. Cox	Peterborough	Dec. 31, 1893.
Crown Savings and Loan Company	Jan. 30, 1882	John H. Fairbank	John Fraser	Petrolea	Dec. 31, 1893.
Midland Loan and Savings Company	 1873	John Mulligan	George M. Furby	Port Hope	Dec. 31, 1893.
Security Loan and Savings Company	March 15, 1870	Thomas R. Merritt	E. F. Dwyer	St. Catharines	Dec. 31, 1893.
Atlas Loan Company	August, 1877	Hon. Richard Harcourt	A. E. Wallace	St. Thomas	Dec. 31, 1893.
Elgin Loan and Savings Company	May 1, 1879	D. McLarty, M.D	George Rowley	St. Thomas	Dec. 31, 1893.
Southern Loan and Savings Company	 1870	Henry Brown	J. W. Stewart	St. Thomas	Dec. 31, 1893.
Southwestern Farmers' and Mechanics' Savings and Loan Society	Feby. 18, 1875	E. W. Gustin, M.D	W. E. Leonard	St. Thomas	Dec. 31, 1893.
Star Loan Company	Aug. 31, 1881	Hon. David Mills	Daniel M. Tait	St. Thomas	Feb. 28, 1894.
Huron and Lambton Loan and Savings Company	November, 1877	James Flintoft	J. C. Douglas	Sarnia	Dec. 31, 1893.
Industrial Mortgage and Savings Company	October, 1889	J. F. Lister, M.P	J. S. Symington	Sarnia	Dec. 31, 1893.

Lambton Loan and Investment Company	1844	Chas. Mackenzie, M.P.P.	Robert S. Gurd	Sarnia	June 30, 1893.
British Mortgage Loan Company	October, 1877	Hon. Thos. Ballantyne	William Buckingham	Stratford	Dec. 31, 1893.
Stratford Building and Savings Society	Aug. 22, 1889	M. F. Goodison	D. B. Burritt	Stratford	Sep. 30, 1893.
Bristol and West of England Canadian Land Mortgage and Investment Company	March 25, 1878	Sir George W. Edwards. T. Sutherland Stayner	Wm. Smith and Co	Bristol, Eng. Toronto	Dec. 31, 1893.
British Canadian Loan and Investment Company	July 1, 1877	A. H. Campbell	R. H. Tomlinson	Toronto	Dec. 31, 1893.
Building and Loan Association	March 1, 1870	Larratt W. Smith, Q.C.	Walter Gillespie	Toronto	Dec. 31, 1893.
Canadian Homestead Loan and Savings Association	September, 1886	John Hillock	A. J. Pattison	Toronto	Sep. 30, 1893.
Canada Landed and National Investment Company	1858	John Lang Blaikie	Andrew Rutherford	Toronto	Dec. 30, 1893.
Canadian Mutual Loan and Investment Company	June 14, 1890	John J. Withrow	A. J. Jackson	Toronto	July 31, 1893.
Canada Permanent Loan and Savings Company	1855	J. Herbert Mason	George H Smith	Toronto	Dec. 31, 1893.
Canadian Savings Loan and Building Association	March 28, 1890	E. W. D. Butler	Daniel Rose	Toronto	June 30, 1893.
City and County Loan Association	Jan. 26, 1889	Ambrose Kent	John C. Laidlaw	Toronto	Dec. 30, 1893.
Credit-Foncier Franco-Canadian	January, 1881	G. Brolemann	Martial Chevalier	Montreal	Dec. 31, 1892.
Dominion Building and Loan Association	May 1, 1890	J. R. Stratton, M.P.P.	F. M. Holland	Toronto	Ap'l. 30, 1893.
Dovercourt Land, Building and Savings Company	Dec. 16, 1885	James Brandon	James T. Locke	Toronto	Dec. 31, 1893.
Equitable Savings, Loan and Building Association	Feby. 29, 1892	Henry O'Hara	Edward A. Taylor	Toronto	Dec. 31, 1893.
Farmers' Loan and Savings Company	October, 1871	William Mulock, M.P.	George S. C. Bethune	Toronto	Ap'l. 30, 1893.
Freehold Loan and Savings Company	May, 1859	C. H. Gooderham	Hon. S. C. Wood	Toronto	Ap'l. 30, 1893.
Globe Savings and Loan Company	Feby. 9, 1892	William Bell	J. L. Kerr	Toronto	Feb. 28, 1894.
Home Savings and Loan Company	April 25, 1877	Hon. Sir Francis Smith	James Mason	Toronto	Dec. 31, 1893.
House and Land Investment Company	July 20, 1891	James Seter Murray	W. C. Kennedy	Toronto	Dec. 31, 1893.
Imperial Loan and Investment Company	Sept. 14, 1869	James Thorburn, M.D.	E. H. Kirkland	Toronto	Dec 31, 1893.
Imperial Trusts Company	March, 1889	Sir Leonard Tilly, C.B. K.C.M.G.	Frederick S. Sharp	Toronto	Dec. 31, 1893.
Land Security Company	December, 1873	Major George Greig	William Innes Mackenzie.	Toronto	Dec. 31, 1893.
London and Canadian Loan and Agency Company	Jan. 1, 1873	Sir Wm. P. Howland, C.B.K.C.M.G.	James Ferrier Kirk	Toronto	Aug. 31, 1893.
London and Ontario Investment Company	May 15, 1877	Sir Francis Smith	Alfred Morgan Cosby	Toronto	June 30, 1893.
North of Scotland Canadian Mortgage Company	Dec. 17, 1875	James W. Barclay, M.P.	Osler and Hammond	Toronto	Nov. 11, 1893.
North British Canadian Investment Company	Oct. 14, 1876	Peter Sturrock	James L. Scarth	Toronto	Dec. 31, 1893.
Ontario Industrial Loan and Investment Company	Jan. 5, 1880	William Booth	Edmund T. Lightbourn	Toronto	Dec. 31, 1893.
People's Loan and Deposit Company	March, 1875	Hon. J. C. Aikins	James Watson	Toronto	Dec. 31, 1893.
Provincial Building and Loan Association	June, 1892	George J. St. Leger	W. H. Auger	Toronto	Feb. 26, 1894.
Real Estate Loan Company of Canada	December, 1879	John Smart	Benjamin Morton	Toronto	Dec. 31, 1893.
Scottish Ontario and Manitoba Land Company	Dec. 15, 1879	Hugh Wright	James L. Scarth	Alticry, Scotland Toronto	Dec. 31, 1893.
Sons of England Building, Loan and Savings Association	April 30, 1889	S. B. Pollard, M.D.	George Clay	Toronto	Dec. 31, 1893.
Toronto Land and Loan Company	May 27, 1881	Arthur Harvey	Vacant	Toronto	Feb. 28, 1894.
Toronto Savings and Loan Company	June 15, 1885	Robert Jaffray	A. E. Ames	Toronto	Dec. 31, 1893.
Toronto Land and Investment Corporation	Feby. 22, 1886	Geo. R. R. Cockburn, M.P.	Thomas McCracken	Toronto	Nov. 30, 1893.
Toronto General Trusts Company	February, 1882	Hon. Edward Blake, Q.C.	J. W. Langmuir	Toronto	Mar. 31, 1893.
Trust and Loan Company of Canada	October 1, 1851	Charles Morrison	Wm. B. B. Simpson; Major R. J. Evans	Toronto; Montreal	Sep. 30, 1893.
Trusts Corporation of Ontario	1889	Hon. James Cox Aikins	Alfred Edwin Plummer	Toronto	Dec. 31, 1893.
Union Loan and Savings Company	March, 1865	Walter B. Geikie, M.D.	William Maclean	Toronto	Dec. 31, 1893.
Western Canada Loan and Savings Company	March, 1863	Hon. George W. Allen	Walter S. Lee	Toronto	Dec. 31, 1893.
York County Loan and Savings Company	Dec. 8, 1891	Joseph Phillips	Albert E. Nash	Toronto	Dec. 30, 1893.
Ontario Permanent Building and Loan Association	Sept. 15, 1892	A. B. Welford, M.D.	R. W. Ball	Woodstock	Dec. 15, 1893.
Oxford Permanent Loan and Savings Society	1865	William Gray	Malcolm Douglas	Woodstock	Dec. 31, 1893.

TABLE I. Statement of affairs showing the capital stock, liabilities and assets of 86 Loan and Investment Companies in the Province of Ontario for the year 1893, as required to be furnished by Chapter 169, Section 83, R. S. O. 1887, or by provisions of special charters; also a miscellaneous summary of the business transacted by each company during the year.

Schedule.	Barrie Loan, Barrie.	Hastings Loan, Belleville.	Royal Loan, Brantford.	Brockville Loan, Brockville.	Chatham Loan, Chatham.	East Lambton Loan, Forest.	Huron and Bruce Loan, Goderich.	Guelph and Ontario Society, Guelph.	Hamilton Homestead, Hamilton.
Capital Stock.	$	$	$	$	$	$	$	$	$
Capital authorized	250,000	250,000	500,000	500,000	1,000,000	500,000	500,000	1,000,000	1,000,000
Capital subscribed	250,000	225,000	500,000	250,000	351,900	100,100	210,450	720,000	292,829
Liabilities.									
Liabilities to stockholders:									
Stock fully paid up			499,000				142,300	348,350	
Stock on which has been paid	117,500	209,097	300	126,420	211,854	73,673	31,561	74,000	78,069
Accumulating stock								392	3,591
Reserve fund	10,000	21,000	100,000	7,900	12,750	371		148,500	
Dividends declared and unpaid	3,525	6,273	17,476	3,781		3,063	5,207	16,689	
Contingent fund and unappropriated profits	1,740	5,332	9,707	771			2,691	4,361	34,901
Total	132,765	241,702	626,483	138,872	224,604	77,107	181,759	592,292	116,561
Liabilities to the public:									
Deposits	26,373	154,049	366,499	88,786	256,820	19,995	104,191	482,444	
Debentures payable in Canada	10,102		380,625		3,376			607,775	
Debentures payable elsewhere		48,667							
Interest on debentures due and accrued			6,225					14,091	
Interest on deposits due and accrued			2,029	3,572				8,581	
Owing to banks	7,072				4,623				
Other liabilities									
Total	43,547	202,716	755,378	92,358	264,819	19,995	104,191	1,112,891	
Assets.									
Secured loan assets:									
Real estate of—									
General borrowers	166,130	374,669	1,220,775	198,583	450,088	92,740	260,718	1,690,342	108,580
Directors and executive officers of company									3,950
Held under power of sale	9,404	32,902	31,600		22,961				
Shareholders' stock		3,173	9,558	3,913			7,500	4,310	
Directors and officers of company on their stock			3,730						
Otherwise secured			744	200		2,733		2,197	
Total	175,534	410,744	1,266,407	202,696	473,049	95,473	268,218	1,696,849	112,530

Property assets :									
Municipal and school section securities, cash value			99,525					5,184	
Office furniture and fixtures		1,638	100	293	420	343	590		170
Cash on hand	778	656	7,512	1,018	5,353	32	2,478		
Cash in banks		31,380	8,317	9,223		1,254	12,062	3,150	1,384
Special deposits in banks									
Office premises					10,601				
Real estate absolutely foreclosed				18,000			2,602		
Real estate otherwise acquired									600
Other property									1,877
Total	778	33,674	115,454	28,534	16,374	1,629	17,732	8,334	4,031
Grand total *assets* or *liabilities*	176,312	444,418	1,381,861	231,230	489,423	97,102	285,950	1,705,183	116,561
Miscellaneous.									
Dividends declared in year { Rate per cent	6.	6.	7.	6.	6.	5.	5½.	8.	
Dividends declared in year { Amount	7,050	12,469	34,951	7,548	12,375	3,063	9,531	33,119	
Loaned during the year	34,248	58,325	126,619	34,880	77,343	43,254	24,080	245,641	22,409
Received from borrowers (principal and interest)	39,260	59,493	275,269	48,614	69,315	13,466	42,291	270,572	5,594
Received from depositors	57,275	160,710	640,549	53,491	490,872	41,335	88,034	997,140	†18,797
Repaid depositors	61,337	170,936	738,973	53,884	498,694	32,024	114,447	1,033,716	†13,253
Debentures issued	10,000		136,239		2,906			138,615	
Debentures repaid	15,000		106,093					119,838	
Debentures to mature within one year	10,000		108,256					193,226	
Average rate of interest { For debentures	5 00	5 00	4 61		4.50			4.76	
Average rate of interest { For deposits	4.00	4 00	3.50	4.00	4.07	3 50	4.00	3.50	
Interest paid and accrued { On debentures	463	2,433	17,183		90			28,648	
Interest paid and accrued { On deposits	1,110	6,088	14,824	3,572	10,602	674	2,062	18,765	†370
Cost of management	904	3,244	7,298	1,771	4,167	741	1,572	8,980	1,336
Invested and secured by mortgage { In Ontario	166,129	407,571	1,252,375	196,983	473,049	92,740	260,718	1,690,342	‡112,130
Invested and secured by mortgage { Elsewhere				1,600					
Mortgages by instalments			3,350	26,000	70,933			231,285	
Mortgages at stated period	166,129	407,571	1,249,025	172,583	402,116	92,740	260,718	1,459,057	112,530
Average interest on total amount secured by mortgage	7.00	6.50	6.26	7.00	6.57	6.00	6.00	6.16	6 00
Average interest on amount loaned on mortgage in year	6.00	6.50	6.00	6.50	6.23	6.00	6.00	6.00	6.0
Mortgages on which compulsory proceedings have been taken { Number	1		27		2		1	2	
Mortgages on which compulsory proceedings have been taken { Amount	1,825		62,590		8,151		3,300	5,283	
Value of mortgaged property held for sale	9,500	55,500	32,752		28,800				
Amount chargeable against such property	9,404	32,902	31,600		22,961				

† Members only for dues and withdrawals. ‡ In city of Hamilton only.

TABLE I. LOAN AND INVESTMENT COMPANIES—*Continued.*

Schedule.	Hamilton Mutual, Hamilton.	Hamilton Provident, Hamilton.	Landed Banking, Hamilton.	Frontenac Loan, Kingston.	Ontario Building, Kingston.	Agricultural Savings, London.	Birkbeck Loan, London.	Canadian Savings, London.	Dominion Savings, London.	Huron and Erie Loan, London.
Capital Stock.	$	$	$	$	$	$	$	$	$	$
Capital authorized	600,000	1,500,000	700,000	Unlimited	250,000	1,000,000	1,000,000	Unlimited	1,500,000	3,000,000
Capital subscribed	530,000	1,500,000	700,000	200,000	250,000	630,200	16,600	750,000	1,000,000	3,000,000
Liabilities.										
Liabilities to stockholders:										
Stock fully paid up		1,000,000		200,000	250,000					1,000,000
Stock on which has been paid	19,528	100,000	663,100			619,000		727,650	932,200	336,981
Accumulating stock			11,282			7,006	608	4,092	377	
Reserve fund		300,000	145,000	30,000		120,000		200,000	10,000	670,129
Dividends declared and unpaid		38,500	19,878	5,075	6,289	18,569			27,966	58,914
Contingent fund and unappropriated profits	7,206	30,027	13,446	5,028	19,736	2,557	19	27,539	22,396	7,341
Total	26,734	1,468,527	852,706	240,103	276,025	767,132	627	959,281	992,939	2,073,365
Liabilities to the public:										
Deposits		940,048	475,595	252,452	242,930	554,414		735,484	624,475	1,297,669
Debentures payable in Canada		182,799	429,301			348,506		100,530	114,114	996,619
Debentures payable elsewhere		*1,109,940	146,230			173,102		36,500	661,262	1,510,518
Interest on debentures due and accrued		12,366	7,091			6,107		2,778	5,116	30,420
Interest on deposits due and accrued			965							442
Owing to banks										
Other liabilities		16,895	1,645	4	23	449	400	21	225	
Total		2,262,048	1,060,827	252,456	242,953	1,082,578	400	875,313	1,405,192	3,835,668
Assets.										
Secured loan assets:										
Real estate of—										
General borrowers	19,952	3,297,167	1,806,775	291,681	323,073	1,729,371	1,000	1,725,870	2,066,334	5,694,245
Directors and executive officers of company			1,809	41,349	5,013					
Held under power of sale		175,313	40,854	38,466	40,551	22,222		24,470	174,310	12,536
Shareholders' stock		5,299		12,901	4,414	16,735		36,124	143,598	
Directors and officers of company on their stock				26,599	13,214			780		
Otherwise secured								35		
Total	19,952	3,477,779	1,849,438	414,996	386,265	1,768,328	1,000	1,787,279	2,384,242	5,706,781

Property assets:										
Municipal and school section securities, cash value	.....	43,788	11,310	927	27,436	2,070	.....	.....	.....	5,450
Office furniture and fixtures	.....	.....	.....	189	87	500	.....	.....	1,000	.....
Cash on hand	91	3,387	1,416	105	65	1,988	27	.....	2,533	2,956
Cash in banks	2,970	41,508	28,752	3,046	52,937	45,277	.....	23,315	10,356	98,756
Special deposit in banks	50	50,000	.....	5,000	21,671	.....	.....	.....	.....	15,000
Office premises	.....	96,526	.....	4,022	.....	28,000	.....	24,000	.....	19,000
Real estate absolutely foreclosed	.....	.....	3,853	17,902	.....	.....	.....	.....	.....	.....
Real estate otherwise acquired	.....	7,500	18,764	12,661	5,672	2,768	.....	.....	.....	.....
Other property	3,671	10,087	.....	33,711	24,845	779	.....	.....	.....	61,090
Total	6,782	252,796	64,095	77,563	132,713	81,382	27	47,315	13,889	202,252
Grand total *assets* or *liabilities*	26,734	3,730,575	1,913,533	492,559	518,978	1,849,710	1,027	1,834,594	2,398,131	5,909,033
Miscellaneous.										
Dividends declared in year — Rate per cent.	.....	7.	6.	5.	5.	6.	.....	7.	6.	9.
Dividends declared in year — Amount	.....	77,000	40,534	10,000	12,500	37,538	.....	51,324	55,961	117,230
Loaned during the year	5,200	497,258	305,208	78,743	84,596	227,716	1,000	176,636	322,288	1,013,895
Received from borrowers (principal and interest)	1,687	746,886	421,248	81,490	131,611	287,968	15	262,907	572,279	937,178
Received from depositors	.....	709,885	1,090,044	430,005	328,115	638,631	.....	953,716	926,087	1,456,300
Repaid depositors	.....	851,064	1,283,741	464,117	343,463	703,633	.....	944,681	950,343	1,501,096
Debentures issued	.....	110,607	285,279	.....	.....	212,869	.....	52,530	169,474	589,782
Debentures repaid	.....	138,089	133,551	.....	.....	155,434	.....	65,686	316,789	348,477
Debentures to mature within one year	.....	229,047	107,429	.....	.....	152,666	.....	89,730	74,332	553,038
Average rate of interest — For debentures	.....	4.10	4.78	.....	.....	4.70	.....	4.74	4.15	4.20
Average rate of interest — For deposits	.....	3.41	3.77	3.55	3.50	4.02	.....	4.19	4.50	4.00
Interest paid and accrued — On debentures	.....	53,480	22,732	.....	.....	22,693	.....	6,120	36,412	101,284
Interest paid and accrued — On deposits	.....	33,872	21,396	9,035	8,897	23,439	.....	31,292	28,222	52,663
Cost of management	498	34,401	14,189	4,024	2,795	10,998	136	10,322	14,176	33,075
Invested and secured by mortgage. In Ontario	19,952	3,033,814	1,498,987	279,735	368,637	1,751,593	1,000	1,750,340	2,240,644	5,706,781
Invested and secured by mortgage. Elsewhere	.....	413,666	350,501	91,761	.....	.....	.....	.....	.....	.....
Mortgages by instalments	19,952	2,496,867	36,367	371,496	156,825	18,655	1,000	13,440	503,603	1,012,992
Mortgages at stated period	.....	876,613	1,813,071	.....	211,812	1,732,938	.....	1,736,900	1,737,041	4,693,789
Average interest on total amount secured by mortgage	5.50	6.24	6.76	5.60	6.24	6.20	10.80	6.26	6.20	6.11
Average interest on amount loaned on mortgage in year	5.50	6.64	6.92	5.97	5.93	6.04	10.80	6.05	6.10	5.90
Mortgages on which compulsory proceedings have been taken — Number	.....	37	23	.....	2	6	.....	4	23	20
Mortgages on which compulsory proceedings have been taken — Amount	.....	56,101	81,079	.....	4,755	13,583	.....	7,422	20,485	43,118
Value of mortgaged property held for sale	.....	175,313	40,854	37,500	31,900	22,222	.....	26,700	174,310	12,536
Amount chargeable against such property	.....	175,313	40,854	38,466	40,551	22,222	.....	24,470	174,310	12,536

* Including $378,383 debenture stock. † Commenced 11th February, 1893.

Schedule.	London Loan, London.	Ontario Investment, London.	Ontario Loan, London.	Peoples' Building, London.	Orangeville Building, Orangeville.	Ontario Loan, Oshawa.	Home Building and Savings, Ottawa.	Metropolitan Loan, Ottawa.	Ottawa Building, Ottawa.	Owen Sound Grey and Bruce, Owen Sound.
Capital Stock.	$	$	$	$	$	$	$	$	$	$
Capital authorized	Unlimited	3,000,000	Unlimited	5,000,000	50,000	300,000	1,000,000	320,000	Unlimited	500,000
Capital subscribed	679,700	2,665,600	2,000,000	245,200	24,550	300,000	235,200	320,000	150,600	380,200
Liabilities.										
Liabilities to stockholders:										
Stock fully paid up	.....	.....	1,000,000	.....	18,100	299,000	.....	.....	.....	46,700
Stock on which has been paid	656,850	678,586	200,000	14,185	4,060	431	26,777	310,560	115,324	94,400
Accumulating stock	2,555	.....	.....	6,783	.....	.....	.....	32	.....	.....
Reserve fund	71,500	.....	432,000	.....	391	75,000	.....	30,000	.....	1,400
Dividends declared and unpaid	.....	.....	42,000	594	38	.....	.....	9,318	.....	3,925
Contingent fund and unappropriated profits	1,065	.....	595	667	1,212	10,000	1,581	12,349	65	128
Total	731,970	678,586	1,674,595	22,229	23,801	384,431	28,358	362,259	115,389	146,553
Liabilities to the public:										
Deposits	480,420	584	454,181	.....	.....	289,753	.....	31,475	.....	44,233
Debentures payable in Canada	187,676	.....	182,211	.....	.....	218,300	.....	.....	.....	27,520
Debentures payable elsewhere	107,067	.....	1,824,307	.....	.....	.....	.....	.....	.....	.....
Interest on debentures due and accrued	3,928	.....	21,417	.....	.....	25	.....	.....	.....	567
Interest on deposits due and accrued	.....	.....	.....	.....	.....	.....	.....	.....	.....	866
Owing to banks	.....	.....	.....	.....	.....	33,975	.....	1,516	848	1,775
Other liabilities	.....	*123,742	.....	.....	33	.....	.....	.....	593	7,017
Total	779,091	124,326	2,482,116	.....	33	542,053	.....	32,991	1,441	81,978
Assets.										
Secured loan assets:										
Real estate of—										
General borrowers	1,442,447	88,300	3,745,398	22,025	23,558	701,818	25,150	270,343	76,384	228,074
Directors and executive officers of company	.....	.....	569	.....	.....	2,998	.....	.....	40,200	.....
Held under power of sale	23,297	17,180	33,715	.....	.....	72,062	.....	90,883	.....	.....
Shareholders' stock	23,460	.....	49,117	.....	.....	3,342	950	16,078	.....	.....
Directors and officers of company on their stock	1,250	.....	18,194	.....	.....	7,686	.....	.....	.....	.....
Otherwise secured	.....	7,048	9,836	.....	.....	.....	.....	310	246	107
Total	1,490,454	112,528	3,856,829	22,025	23,558	787,906	26,100	377,614	116,830	228,181

Property assets :											
Municipal and school section securities, cash value			24,059			34,395					
Office furniture and fixtures	450			130		500	50	460			141
Cash on hand	5,436			3		236	1,549				209
Cash in banks	14,721	13,442	91,835		276	10,645					
Special deposit in banks						59,000					
Office premises			72,000			11,000		17,176			
Real estate absolutely foreclosed		5,100	16,800								
Real estate otherwise acquired		14,839	4,000			20,000					
Other property		†657,003	91,188	71		11,802	659				
Total	20,607	690,384	299,882	204	276	138,578	2,258	17,636			350
Grand total *assets* or *liabilities*	1,511,061	802,912	4,156,711	22,229	23,834	926,484	28,358	395,250	116,830		228,531
Miscellaneous.											
Dividends declared in year { Rate per cent.	6.		7.	12½ and 9⅔	5.	7.		6.			6.
Dividends declared in year { Amount	39,591		84,000	594	1,098	20,959		18,635			7,240
Loaned during the year	235,323	2,343	750,097	22,025	2,933	80,871	11,665	84,021	2,384		58,085
Received from borrowers (principal and interest)	456,786	69,421	645,616		4,307	140,915		96,279			28,819
Received from depositors	1,046,964		486,340			282,814		26,059			161,411
Repaid depositors	1,221,937	317	509,657			296,029		39,049			172,983
Debentures issued	108,270		329,033			80,700					13,000
Debentures repaid	81,100		322,867			67,800					
Debentures to mature within one year	116,550		253,536								8,170
Average rate of interest { For debentures	4.72		4.09			4.75					5.00
Average rate of interest { For deposits	4.15		3.95			3.50		3.50			4.50
Interest paid and accrued { On debentures	16,091		81,746			9,990					1,373
Interest paid and accrued { On deposits	23,786		18,420			11,325		1,006			2,977
Cost of management	7,773		26,106	3,579	113	5,873	345	2,072	534		1,181
Invested and secured by mortgage { In Ontario	1,465,714	105,480	3,700,982	22,025	23,558	776,878	25,150	361,226	116,584		228,074
Invested and secured by mortgage { Elsewhere			78,700								
Mortgages by instalments	951,353		1,314,521	22,025	3,598	300,000	25,150	4,200	116,584		
Mortgages at stated period	514,361	105,480	2,465,161		19,960	476,878		357,026			228,074
Average interest on total amount secured by mortgage	6.00		6.13	‡6.00	5.17	6.00	8.00	6.50	6.50		6.50
Average interest on amount loaned on mortgage in year	6.00		5.83		6.84	6.00	8.00	6.50	6.00		6.50
Mortgages on which compulsory proceedings have been taken { Number	12	4	6			2		1			2
Mortgages on which compulsory proceedings have been taken { Amount	17,552	33,955	16,209			1,800		2,200			1,950
Value of mortgaged property held for sale	25,583	17,180	33,715			75,000		100,000			
Amount chargeable against such property	23,297	17,180	33,715			72,062		90,883			

* In liquidation, including $123,542 owing to Dominion Savings Society. † Estimated loss on realizing on assets. ‡ And 4⅓ premium.

TABLE I. LOAN AND INVESTMENT COMPANIES—*Continued.*

Schedule.	Owen Sound Building and Savings, Owen Sound.	Central Canada Loan, Peterborough.	Crown Savings, Petrolea.	Midland Loan, Port Hope.	Security Loan, St. Catharines.	Atlas Loan, St. Thomas.	Elgin Loan, St. Thomas.	Southern Loan St. Thomas.	South-western Farmers' and Mechanics', St. Thomas.	Star Loan, St. Thomas.
Capital Stock.	$	$	$	$	$	$	$	$	$	$
Capital authorized	1,000,000	5,000,000	1,000,000	560,000	300,000	2,000,000	625,000	Unlimited	Unlimited	270,000
Capital subscribed	153,250	2,500,000	200,000	560,000	275,000	1,000,000	625,000	400,000	141,950	270,000
Liabilities.										
Liabilities to stockholders:										
Stock fully paid up		875,000	126,700	310,000				400,000	138,100	192,800
Stock on which has been paid		325,000	37,828	50,000	274,256	267,237	212,634		2,683	
Accumulating stock	40,553								4	27,169
Reserve fund		300,000	16,500	80,000		7,000	19,000	64,000	10,000	14,000
Dividends declared and unpaid		30,707	4,892	12,625	8,228				4,215	
Contingent fund and unappropriated profits	7,861	24,008	350	6,800	3,535	400	597	3,069	1,032	4,191
Total	48,414	1,554,715	186,270	459,425	286,019	274,637	232,231	467,069	156,034	238,160
Liabilities to the public:										
Deposits	2,871	560,930	43,425	279,793	263,673	180,103	141,138	333,406	129,648	149,688
Debentures payable in Canada		883,562	9,329	608,409	26,734	94,100			38,200	
Debentures payable elsewhere		1,929,966								
Interest on debentures due and accrued		21,115		16,315					839	
Interest on deposits due and accrued	50									
Owing to banks						6,608	15,799	6,104		
Other liabilities	40	85,401		4,869						249
Total	2,961	3,480,974	52,754	909,386	290,407	280,811	156,937	339,510	168,687	149,937
Assets.										
Secured loan assets:										
Real estate of—										
General borrowers	44,521	1,924,432	212,704	1,260,306	501,054	551,437	346,146	779,180	295,331	344,727
Directors and executive officers of company	1,600						2,472	5,050	1,640	
Held under power of sale	1,300	47,136		48,411	60,897		33,110	14,631	9,926	9,619
Shareholders' stock	2,233			10,846	4,251	2,629	4,502	6,071	1,175	13,547
Directors and officers of company on their stock				5,600			515	853	1,030	268
Otherwise secured	1,381	*831,104	751	650	9,569					722
Total	51,035	2,802,672	213,455	1,325,813	575,771	554,066	386,745	805,785	309,102	368,883

Property assets:											
Municipal and school section securities, cash value	.....	358,295	20,082	.....	.....	.....	.....	639	3,642	.....	.....
Office furniture and fixtures	35	3,500	14	552	246	453	.....	.....	200	.....	.....
Cash on hand	.....	3,217	.....	800	.....	.....	.....	.....	.....	.....	.....
Cash in banks	267	38,534	231	21,632	322	929	.....	131	10,977	16,350	
Special deposit in banks	.....	.....	5,242	.....	.....	.....	.....	.....	.....	.....	
Office premises	.....	35,953	.....	7,000	.....	.....	.....	.....	.....	2,700	
Real estate absolutely foreclosed	.....	47,136	.....	10,505	.....	.....	.....	.....	.....	.....	
Real estate otherwise acquired	.....	.....	.....	.....	.....	.....	2,423	.....	800	.....	
Other property	38	*1,746,382	.....	2,509	87	.....	.....	24	.....	164	
Total	340	2,233,017	25,569	42,998	655	1,382	2,423	794	15,619	19,214	
Grand total *assets* or *liabilities*	51,375	5,035,689	239,024	1,368,811	576,426	555,448	389,168	806,579	324,721	388,097	
Miscellaneous.											
Dividends declared in year { Rate per cent.	10.	6.	6.	7.	6.	6.	6.	7.	6.	6.	
Dividends declared in year { Amount	2,954	60,707	9,658	25,068	16,455	15,861	12,490	28,000	8,437	12,926	
Loaned during the year	10,482	771,849	49,214	223,419	122,618	124,975	129,645	221,091	84,305	69,295	
Received from borrowers (principal and interest)	12,510	854,726	58,745	154,924	145,884	146,639	82,925	208,322	73,825	72,195	
Received from depositors	5,531	532,755	32,750	410,766	342,732	513,896	235,429	402,100	203,815	152,156	
Repaid depositors	8,707	627,239	36,544	405,011	388,156	557,512	225,426	357,634	213,385	146,769	
Debentures issued	.....	1,004,224	.....	420,393	27,025	72,700	.....	.....	38,200	.....	
Debentures repaid	.....	373,136	3,294	396,408	19,307	60,900	.....	.....	.....	.....	
Debentures to mature within one year	.....	414,171	.....	335,658	12,867	16,000	.....	.....	7,600	.....	
Average rate of interest { For debentures	.....	4.42	5.00	4.80	4.00	5.00	.....	.....	4.50	.....	
Average rate of interest { For deposits	5.00	4.45	3.50	4.00	3.50	4.19	4.25	4.04	4.00	4.25	
Interest paid and accrued { On debentures	.....	111,374	502	27,877	1,259	4,936	.....	.....	1,157	.....	
Interest paid and accrued { On deposits	343	29,979	1,456	11,520	9,926	7,071	6,148	13,056	5,710	6,139	
Cost of management	990	30,695	1,410	6,914	4,526	4,226	2,882	4,095	2,514	2,297	
Invested and secured by mortgage { In Ontario	47,421	1,971,568	212,704	1,308,717	561,951	551,437	381,728	798,861	306,897	354,346	
Invested and secured by mortgage { Elsewhere	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Mortgages by instalments	.....	.....	212,704	.....	406,592	450,789	254,728	510,829	202,235	.....	
Mortgages at stated period	47,421	1,971,568	.....	1,308,717	155,359	100,648	127,000	288,032	104,662	354,346	
Average interest on total amount secured by mortgage	9.01	6.15	6.45	6.40	6.40	6.78	6.25	6.30	6.29	6.25	
Average interest on amount loaned on mortgage in year	7.39	6.00	6.05	6.04	6.33	6.83	6.00	6.06	6.05	6.00	
Mortgages on which compulsory proceedings have been taken { Number	2	16	.....	2	8	12	6	10	1	.....	
Mortgages on which compulsory proceedings have been taken { Amount	1,300	35,696	.....	6,500	9,629	29,250	16,162	27,341	2,243	.....	
Value of mortgaged property held for sale	1,300	47,136	.....	42,411	60,897	.....	35,000	14,631	10,726	10,000	
Amount chargeable against such property	1,300	47,136	.....	48,411	60,897	.....	33,110	14,631	9,926	9,619	

* Call Loans, Stocks, Bonds and Debentures.

TABLE I. LOAN AND INVESTMENT COMPANIES—*Continued.*

Schedule.	Huron and Lambton Loan, Sarnia.	Industrial Mortgage, Sarnia.	Lambton Loan, Sarnia.	British Mortgage, Stratford.	Stratford Building, Stratford.	Bristol and West of England, Toronto.	British Canadian, Toronto.	Building and Loan, Toronto.	Canada Landed and National Investment, Toronto.	Canadian Homestead,' Toronto.
Capital Stock.	$	$	$	$	$	$	$	$	$	$
Capital authorized	1,000,000	500,000	1,000,000	5,000,000	Unlimited	2,433,333	5,000,000	750,000	4,000,000	1,000,000
Capital subscribed	399,200	215,000	500,000	450,000	173,800	680,117	2,000,000	750,000	2,008,000	445,700
Liabilities.										
Liabilities to stockholders:										
Stock fully paid up	294,100			159,800	4,000			750,000		
Stock on which has been paid	9,620	196,321	498,513	152,179	28,383	136,023	398,493		1,004,000	107,473
Accumulating stock	26,164									
Reserve fund	43,500	15,808	244,000	75,000		21,900	112,000	112,000	350,000	8,500
Dividends declared and unpaid		5,819		10,908	178		13,947	22,500	38,019	
Contingent fund and unappropriated profits	10,335		3,269	766	2,843	7,230	9,399	46,907	19,063	15,690
Total	383,719	217,948	745,782	398,653	35,404	165,153	533,839	931,407	1,411,082	131,663
Liabilities to the public:										
Deposits	250,933	191,456	473,735	533,216			10,183	168,981		4,748
Debentures payable in Canada		71,468	178,497				218,876	150,090	217,767	
Debentures payable elsewhere						1,066,007	1,455,932	554 843	2,625,683	
Interest on debentures due and accrued		1,197	3,791			11,252	18,273		18,253	
Interest on deposits due and accrued			17,256	18,946						
Owing to banks	45,504	6,886	11,796		1,200					
Other liabilities		1,233			2,409	10,650	6,423	942	34,502	1,657
Total	296,437	272,240	685,075	552,162	3,609	1,087,909	1,709,687	874,856	2,896,205	6,405
Assets.										
Secured loan assets:										
Real estate of—										
General borrowers	487,669	464,941	1,258,898	936,484	35,389	1,036,149	2,048,912	1,484,993	3,917,054	127,726
Directors and executive officers of company	23,427		4,581	6,120	2,200					
Held under power of sale	18,080		15,855	2,350		127,128	133,918		270,112	
Shareholders' stock	45,102	8,724	17,424	300	810		500	11,675		
Directors and officers of company on their stock			956	700	295					
Otherwise secured	95,465	13,961	68,276				11,637			4,094
Total	669,743	487,626	1,365,990	945,954	38,694	1,163,277	2,194,967	1,496,668	4,187,166	131,820

Property assets:										
Municipal and school section securities, cash value							5,120		25,052	
Office furniture and fixtures	125	850	1,000		157		2,000			500
Cash on hand	2,788	1,712	6,867		22	14	1,229	595	798	
Cash in banks				4,861		10,055	25,151	26,168	54,271	5,268
Special deposit in banks			50,000							
Office premises	7,500		7,000					80,000	40,000	
Real estate absolutely foreclosed						18,448		184,840		
Real estate otherwise acquired								17,323		
Other property					140	61,268	15,059	669		480
Total	10,413	2,562	64,867	4,861	319	89,785	48,559	309,595	120,121	6,248
Grand total *assets* or *liabilities*	680,156	490,188	1,430,857	950,815	39,013	1,253,062	2,243,526	1,806,263	4,307,287	138,068
Miscellaneous.										
Dividends declared in year — Rate per cent.	6.	6.	8.	7.	5. and 6.	6.	7.	6.	7	5.
Dividends declared in year — Amount	19,769	11,323	39,850	21,806	1,539	8,161	27,864	45,000	70,280	167
Loaned during the year	106,954	103,474	177,999	172,459	15,444	107,363	339,434	228,350	463,104	29,839
Received from borrowers (principal and interest)	138,128	70,641	259,312	223,545	6,598	196,626	328,213	282,638	730,509	25,735
Received from depositors	323,576	336,559	530,604	604,019				378,977		*4,262
Repaid depositors	370,547	344,151	555,404	605,974			472	404,795		*2,634
Dedentures issued		35,813	76,262			65,948	167,879	104,479	506,349	
Debentures repaid		9,100	78,540			87,892	79,949	118,093	585,011	
Debentures to mature within one year		12,010	68,915			295,100	341,885	185,357	595,991	
Average rate of interest — For debentures		4.50	4.25			4.23	4.44	4.44	4.28	
Average rate of interest — For deposits	4.16	4.00	3.63	3.50			4.43	3.46		4.00
Interest paid and accrued — On debentures		2,612	7,552			45,095	76,846	31,379	125,917	
Interest paid and accrued — On deposits	11,687	7,058	17,827	18,946			440	6,286		†2,278
Cost of management	3,921	2,617	5,781	5,717	320	16,250	18,916	13,635	30,806	2,387
Invested and secured by mortgage — In Ontario	529,176	464,941	1,276,334	944,954	37,589	1,163,277	1,813,106	1,333,422	3,275,254	127,726
Invested and secured by mortgage — Elsewhere			3,000				369,724	151,571	911,912	
Mortgages by instalments					36,185		1,082,751	32,483	122,040	
Mortgages at stated period	529,176	464,941	1,279,334	944,954	1,404	1,163,277	1,100,079	1,452,510	4,065,126	127,726
Average interest on total amount secured by mortgage	6.05	6.25	6.25	6.06	7.00		6.21	6.50	6.63	6.00
Average interest on amount loaned on mortgage in year	6.00	6.00	6.00	5 95	7.20		7.43	6.50	6.25	6.00
Mortgages on which compulsory proceedings have been taken — Number	10	2	8				29	13	31	
Mortgages on which compulsory proceedings have been taken — Amount	28,000	2,100	11,477				56,009	39,945	60,370	
Value of mortgaged property held for sale	10,000		17,750	2,350		127,129	135,500		270,112	
Amount chargeable against such property	18,080		15,855	2,350		127,129	133,918		270,112	

* Members only for dues.

†And shares withdrawn.

TABLE I. LOAN AND INVESTMENT COMPANIES—*Continued.*

Schedule.	Canadian Mutual, Toronto.	Canada Permanent, Toronto.	Canadian Savings, Loan and Building, Toronto.	City and County Loan, Toronto.	Credit-Foncier Franco-Canadian, Toronto.	Dominion Building and Loan, Toronto.	Dovercourt Land, Toronto.	Equitable Savings, Loan and Building, Toronto.	Farmers' Loan, Toronto.	Freehold Loan, Toronto.
Capital Stock.	$	$	$	$	$	$	$	$	$	$
Capital authorized	50,000,000	5,000,000	5,000,000	500,000	4,784,689	10,000,000	500,000	5,000,000	1,057,250	3,800,000
Capital subscribed	2,371,300	5,000,000	122,500	59,050	4,784,689	1,804,300	64,550	112,200	1,057,250	3,223,500
Liabilities.										
Liabilities to stockholders :										
Stock fully paid up		2,000,000		28,550		500			500,000	843,000
Stock on which has been paid	79,255	600,000		9,464	1,196,172	352,001	63,650	4,445	111,430	476,100
Accumulating stock	186,517		24,260							
Reserve fund		1,450,000			92,360		25,000		152,949	659,550
Dividends declared and unpaid	7,204	143,085		1,995	837		2,228	364	21,400	52,764
Contingent fund and unappropriated profits	27,221	104,753	118	450	163,908	35,539	10,025	8		57,804
Total	300,197	4,297,838	24,378	40,459	1,453,277	388,040	100,903	4,817	785,779	2,089,218
Liabilities to the public :										
Deposits		869,345							517,679	664,091
Debentures payable in Canada		322,325			73,196				242,048	409,363
Debentures payable elsewhere		*6,351,394			6,035,923				673,887	3,055,419
Interest on debentures due and accrued		38,157			11,959				20,942	61,903
Interest on deposits due and accrued		152,094								12,174
Owing to banks										
Other liabilities		6,696		20	184,880		7,357			
Total		7,740,011		20	6,305,958		7,357		1,454,556	4,202,950
Assets.										
Secured loan assets :										
Real estate of—										
General borrowers	279,381	10,858,839	13,818	25,098	6,803,423	375,847	56,911	3,000	2,023,763	5,145,471
Directors and executive officers of company	2,400			800						
Held under power of sale		562,341							62,444	319,695
Shareholders' stock	4,415	3,938		2,828		652		200	4,159	15,878
Directors and officers of company on their stock										
Otherwise secured		57,145	7,571							
Total	286,196	11,482,263	21,389	28,726	6,803,423	376,499	56,911	3,200	2,090,366	5,481,044

Property assets :										
Municipal and school section securities, cash value	.....	197,119	.....	.....	125,000	.....	.....	.....	.....	1,207
Office furniture and fixtures	1,163	.....	.....	120	139	1,406	.....	139	240	10,302
Cash on hand	152	301	.....	201	400	41	567	249	1,156	2,228
Cash in banks	6,034	173,502	2,556	2,113	459,338	1,181	1,723	1,229	146,952	77,806
Special deposit in banks	.....	.....	.....	.....	.....	7,290	.....	.....	.....	270,739
Office premises	.....	128,954	.....	9,319	32,637	.....	.....	.....	.....	334,277
Real estate absolutely foreclosed	.....	53,800	.....	.....	56,413	.....	.....	.....	.....	80,857
Real estate otherwise acquired	.....	.....	.....	.....	.....	.....	34,939	.....	.....	31,668
Other property	6,652	1,910	433	.....	§281,885	1,623	14,120	.....	1,621	2,040
Total	14,001	555,586	2,989	11,753	955,812	11,541	51,349	1,617	149,969	811,124
Grand total *assets* or *liabilities*	300,197	12,037,849	24,378	40,479	7,759,235	388,040	108,260	4,817	2,240,335	6,292,168
Miscellaneous.										
Dividends declared in year — Rate per cent	†	11½.	10.	6.	6⅔.	.....	7.	11 and 8.	7.	8.
Dividends declared in year — Amount	32,014	299,000	512	1,995	77,181	.....	4,456	364	42,800	105,528
Loaned during the year	164,334	1,922,279	13,102	12,614	861,724	131,012	.....	3,200	232,029	325,593
Received from borrowers (principal and interest)	20,934	2,748,196	‡203	12,471	670,636	63,135	.....	375	276,100	1,833,018
Received from depositors	.....	207,464	‡21,398	.....	.....	.....	.....	.....	292,865	473,313
Repaid depositors	.....	246,406	‡7,571	.....	.....	.....	.....	.....	233,912	647,963
Debentures issued	.....	243,801	.....	.....	.....	.....	.....	.....	185,647	923,186
Debentures repaid	.....	254,444	.....	.....	56,921	.....	500	.....	59,033	726,916
Debentures to mature within one year	.....	1,570,290	.....	.....	59,140	.....	.....	.....	242,773	502,814
Average rate of interest — For debentures	.....	4.00	.....	.....	4.75	.....	5.00	.....	4.50	4.20
Average rate of interest — For deposits	.....	3.85	6.00	.....	.....	.....	.....	.....	4.00	3.90
Interest paid and accrued — On debentures	.....	317,059	.....	.....	289,636	.....	4	.....	39,629	155,112
Interest paid and accrued — On deposits	.....	60,786	420	.....	.....	.....	.....	.....	21,330	32,498
Costs of management	.....	96,638	.....	754	37,732	14,564	1,929	.....	13,650	48,913
Invested and secured by mortgage. — In Ontario	78,581	8,928,505	13,818	25,898	1,301,804	123,632	56,911	3,000	2,070,466	4,491,834
Invested and secured by mortgage. — Elsewhere	203,200	2,492,675	.....	.....	5,501,619	252,215	.....	.....	15,741	973,332
Mortgages by instalments	281,781	10,424,263	13,818	7,361	2,291,226	375,847	.....	3,000	.....	1,327,463
Mortgages at stated period	.....	996,917	.....	18,537	4,512,197	.....	56,911	.....	2,086,207	4,137,703
Average interest on total amount secured by mortgage.	10.80	6.30	6.00	7.00	6.00	.....	7.00	10.80	6.25	6.47
Average interest on amount loaned on mortgage in year	10 80	6.69	6.00	7.00	5.50	.....	7.00	10.80	6.50	7.00
Mortgages on which compulsory proceedings have been taken — Number	2	197	.....	.....	.....	.....	.....	.....	28	36
Mortgages on which compulsory proceedings have been taken — Amount	2,300	427,540	.....	.....	.....	.....	.....	.....	45,232	104,496
Value of mortgaged property held for sale	.....	667,595	.....	.....	.....	.....	.....	.....	75,000	311,400
Amount chargeable against such property	.....	562,341	.....	.....	.....	.....	.....	.....	62,444	319,695

*Including $973,333 of debenture stock at 4 per cent. † 11 per cent. on prepaid stock and 19 per cent. on instalment stock. ‡ Members only.
§ Including $157,450 in Provincial securities.

Schedule.	Globe Savings and Loan, Toronto.	Home Savings, Toronto.	House and Land Investment, Toronto.	Imperial Loan, Toronto.	Imperial Trusts, Toronto.	Land Security, Toronto.	London and Canadian, Toronto.	London and Ontario, Toronto.	North British Canadian, Toronto.	North of Scotland, Toronto.
Capital Stock.	$	$	$	$	$	$	$	$	$	$
Capital authorized	10,000,000	2,000,000	200,000	1,000,000	500,000	5,000,000	5,000,000	3,000,000	2,433,333	3,650,000
Capital subscribed	848,135	1,750,000	23,275	839,850	400,000	1,382,300	5,000,000	2,750,000	2,433,333	3,650,000
Liabilities.										
Liabilities to stockholders :										
Stock fully paid up	.....	.....	9,650	.....	.....	.....	.....	.....	.....	.....
Stock on which has been paid	74,280	175,000	911	703,558	95,295	550,456	700,000	550,000	486,667	730,000
Accumulating stock	23,919	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reserve fund	.....	175,000	.....	155,000	.....	450,000	405,000	160,000	97,333	355,267
Dividends declared and unpaid	171	6,125	.....	24,421	4,765	22,018	28,000	19,250	17,604	36,509
Contingent fund and unappropriated profits	3,836	4,002	.....	9,054	1,022	‡111,627	5,870	.....	41,990	10,122
Total	102,206	360,127	10,561	892,033	101,082	1,134,101	1,138,870	729,250	643,594	1,131,889
Liabilities to the public :										
Deposits	.....	1,828,565	.....	72,951	20,690	134,059	.....	.....	7,763	.....
Debentures payable in Canada	.....	.....	.....	129,600	.....	316,760	2,500	455,489	.....	.....
Debentures payable elsewhere	.....	.....	.....	944,546	.....	874,248	*3,663,084	1,836,786	*x*1,818,008	*y*2,910,933
Interest on debentures due and accrued	.....	.....	.....	16,152	.....	8,257	24,726	19,815	11,336	.....
Interest on deposits due and accrued	.....	69,142	.....	.....	1,631	2,531	.....	.....	.....	.....
Owing to banks	.....	.....	2,080	.....	6,540	.....	4,589	.....	.....	2,156
Other liabilities	3,701	2,627	28,885	.....	‖29,893	23,539	17,244	1,298	9,712	6,887
Total	3,701	1,900,334	30,965	1,163,249	58,754	1,359,394	3,712,143	2,313,388	1,846,819	2,919,976
Assets.										
Secured loan assets :										
Real estate of—										
General borrowers	81,072	923,837	.....	1,935,192	17,837	1,117,093	3,664,983	2,721,622	2,174,079	3,655,829
Directors and executive officers of company	.....	24,415	.....	.....	.....	.....	.....	.....	.....	.....
Held under power of sale	.....	4,520	.....	95,000	.....	47,140	286,147	139,900	159,453	19,335
Shareholders' stock	.....	1,400	.....	7,214	.....	.....	.....	.....	.....	.....
Directors and officers of company on their stock	.....	6,496	.....	.....	.....	.....	.....	.....	.....	.....
Otherwise secured	268	†1,167,958	.....	.....	.....	89,707	164,901	.....	.....	249,542
Total	81,340	2,128,626	.....	2,037,406	17,837	1,253,940	4,116,031	2,861,522	2,333,532	3,924,706

Property assets :										
Municipal and school section securities, cash value	.....	43,421	.....	.....	12,926	.....	492,071	83,285	8,282	.....
Office furniture and fixtures	494	1,738	350	.....	832	835	.....	1,872	243	1,287
Cash on hand	.....	1,355	.....	203	188	.....	.....	708	1,131	27
Cash in banks	24,073	57,310	.....	17,673	11	22,668	17,495	82,912	7,373	12,954
Special deposit in banks	.....	.....	.....	.....	.....	.....	.....	.....	38,934	.....
Office premises	.....	26,611	.....	.....	.....	.....	120,000	.....	.....	112,891
Real estate absolutely foreclosed	.....	.....	.....	.....	.....	.....	.....	6,000	61,398	.....
Real estate otherwise acquired	.....	1,400	40,100	.....	.....	1,216,052	98,218	.....	.....	.....
Other property	.....	.....	1,076	.....	128,042	.....	7,198	6,339	39,520	.....
Total	24,567	131,835	41,526	17,876	‖141,999	1,239,555	734,982	181,116	156,881	127,159
Grand total *assets* or *liabilities*	105,907	2,260,461	41,526	2,055,282	159,836	2,493,495	4,851,013	3,042,638	2,490,413	4,051,865
Miscellaneous.										
Dividends declared in year — Rate per cent	6.	7.	.....	7.	5.	8.	8.	7.	6.	10.
Dividends declared in year — Amount	1,290	12,250	.....	48,085	4,765	44,032	56,000	38,500	29,000	73,000
Loaned during the year	.....	2,254,091	.....	272,984	....	707,638	575,726	258,490	197,865	519,138
Received from borrowers (principal and interest)	6,452	2,325,908	.....	417,761	1,200	876,324	867,704	445,415	462,967	506,995
Received from depositors	.....	2,862,319	.....	255,389	§101,541	132,371	.....	.....	5,547	.....
Repaid depositors	.....	2,816,450	.....	263,297	§94,041	251,454	.....	.....	6,528	.....
Debentures issued	.....	.....	.....	96,937	.....	240,340	*736,847	231,721	61,807	z622,014
Debentures repaid	.....	.....	.....	147,444	.....	72,100	*550,801	224,646	160,098	z624,447
Debentures to mature within one year	.....	.....	.....	168,268	.....	190,704	*985,279	608,777	296,988	z633,051
Average rate of interest — For debentures	.....	.....	.....	4.50	.....	4.40	4.11	4.40	4.30	4.00
Average rate of interest — For deposits	.....	4.00	.....	4.00	4.50	4.46	.....	.....	4.00	.....
Interest paid and accrued — On debentures	.....	.....	.....	44,929	.....	56,746	149,925	102,292	90,251	117,145
Interest paid and accrued — On deposits	.....	73,297	.....	2,742	1,631	11,516	.....	.....	305	.....
Cost of management	.....	17,443	1,498	19,284	3,984	16,678	41,773	25,109	18,266	42,720
Invested and secured by mortgage. — In Ontario	52,119	952,772	.....	1,148,805	5,254	1,166,974	} 3,951,130	2,861,522	{ 1,323,247	} 3,675,164
Invested and secured by mortgage. — Elsewhere	29,953	.....	.....	881,387	12,583	.....			{ 1,010,285	
Mortgages by instalments	.....	249,274	.....	195,000	.....	313,074	.....	.....	1,392	.....
Mortgages at stated period	82,072	703,498	.....	1,835,192	17,837	853,900	3,951,130	2,861,522	2,332,140	3,675,164
Average interest on total amount secured by mortgage.	10.25	6.00	.....	6.88	8.00	6.55	6.25	6.46	7.00	6.85
Average interest on amount loaned on mortgage in year.	10.25	6.00	.....	6.88	.....	6.55	6.50	6.56	8.00	6.50
Mortgages on which compulsory proceedings have been taken — Number	.....	2	.....	19	.....	7	37	43	18	39
Mortgages on which compulsory proceedings have been taken — Amount	.....	2,200	.....	62,849	.....	30,590	80,010	93,380	52,172	60,277
Value of mortgaged property held for sale	.....	6,600	.....	95,000	.....	51,194	286,147	140,415	139,734	20,000
Amount chargeable against such property	.....	4,520	.....	95,000	.....	47,140	286,147	139,900	159,453	19,334

x Including $456,571 debenture stock.
y Including $805,107 debenture stock.
z Debenture holders and for certificates.

† On the collateral security of stocks, bonds and debentures.
‖ Including $29,000 contingent guarantee liability.
* Including certificates payable at fixed dates.

‡ Including $100,000 guarantee fund.
§ Trust accounts.

TABLE I. LOAN AND INVESTMENT COMPANIES.—*Continued.*

Schedule.	Ontario Industrial, Toronto.	Peoples' Loan, Toronto.	Provincial Building, Toronto.	Real Estate Loan, Toronto.	Scottish Ontario and Manitoba, Toronto.	Sons of England Building, Toronto.	¶ Toronto General Trust, Toronto.	Toronto Land and Loan, Toronto.	Toronto Savings and Loan, Toronto.	Trust and Loan, Toronto.
Capital Stock.	$	$	$	$	$	$	$	$	$	$
Capital authorized	500,000	600,000	5,000,000	1,600,000	2,433,333	1,000,000	1,000,000	1,000,000	2,000,000	14,600,000
Capital subscribed	466,800	600,000	489,100	578,840	1,216,667	30,800	1,000,000	104,600	1,000,000	7,300,000
Liabilities.										
Liabilities to stockholders :										
Stock fully paid up	58,000	600,000	900	322,440	.....	2,000	.....	.....	500,000	.....
Stock on which has been paid	256,387	.....	13,342	51,280	714,754	4,559	200,000	76,447	100,000	1,581,667
Accumulating stock	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reserve fund	150,000	112,000	.....	45,000	12,167	.....	225,000	1,016	100,000	852,427
Dividends declared and unpaid	9,431	18,000	.....	7,547	209	.....	9,911	.....	15,214	.....
Contingent fund and unappropriated profits	6,898	3,898	647	17,461	†204,762	288	29,825	7,514	5,405	86,690
Total	480,716	733,898	14,889	443,728	931,892	6,847	464,736	84,977	720,619	2,520,784
Liabilities to the public :										
Deposits	82,422	321,926	.....	270	2,969	.....	.....	502	277,659	.....
Debentures payable in Canada	.....	201,000	.....	24,000	.....	.....	.....	.....	482,675	.....
Debentures payable elsewhere	.....	56,697	.....	.....	258,460	.....	.....	.....	973	4,710,522
Interest on debentures due and accrued	.....	4,138	.....	110	1,699	.....	.....	.....	12,941	.....
Interest on deposits due and accrued	2,088	.....	.....	.....	.....	.....	.....	12	4,042	.....
Owing to banks	.....	.....	.....	.....	.....	.....	16,193	2,000	.....	.....
Other liabilities	210,722	.....	.....	.....	11,276	.....	‡4,322,208	53,272	.....	78,316
Total	295,232	583,761	.....	24,380	274,404	.....	4,338,401	55,786	778,290	4,788,838
Assets.										
Secured loan assets :										
Real estate of—										
General borrowers	187,180	857,883	12,500	352,284	134,789	6,800	3,991,162	45,361	21,022	5,895,096
Directors and executive officers of company	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Held under power of sale	.....	297,204	.....	.....	81,606	.....	72,157	.....	.....	86,016
Shareholders' stock	5,257	15,733	24	135	.....	.....	.....	.....	.....	.....
Directors and officers of company on their stock	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Otherwise secured	.....	143	.....	.....	.....	.....	108,492	.....	y503,917	5,201
Total	192,437	1,170,963	12,524	352,419	216,395	6,800	4,171,811	45,361	524,939	5,986,313

Property assets:										
Municipal and school section securities, cash value.										789
Office furniture and fixtures	472	625	200	125	203		737			1,032
Cash on hand	128	1,992	17	257	492		71		10,896	41,171
Cash in banks	7,817	14,688		15,444	2,724	32	409,365	113	30,861	286,300
Special deposit in banks			2,148							83,510
Office premises							130,000		10,000	119,404
Real estate absolutely foreclosed				90,359						
Real estate otherwise acquired	570,094	129,031		9,504	967,895			95,289		
Other property	5,000	360			18,587	15	91,153		*y*922,213	*z*791,103
Total	583,511	146,696	2,365	115,689	989,901	47	631,326	95,402	973,970	1,323,309
Grand total *assets* or *liabilities*	775,948	1,317,659	14,889	468,108	1,206,296	6,847	4,803,137	140,763	1,498,909	7,309,622
Miscellaneous.										
Dividends declared in year { Rate per cent	6½.	6.	6. and 7.	4.		6.	10.		6.	7.
Dividends declared in year { Amount	20,435	36,000	255	14,949		269	17,397		30,214	110,717
Loaned during the year	22,225	170,32[illegible]	12,524	87,450			1,165,321	*	571,512	581,202
Received from borrowers (principal and interest)	24,670	293,433		51,440		438	662,237	*	647,274	1,032,288
Received from depositors	25,028	518,382			213			*	528,903	
Repaid depositors	17,825	638,621		96	9,977			*	533,991	
Debentures issued		60,800		24,000	2,725				149,348	215,180
Debentures repaid		27,700			52,769				103,345	318,037
Debentures to mature within one year		48,133			86,748				30,300	1,139,410
Average rate of interest { For debentures		4.80		5.00	4.50				4.97	4.00
Average rate of interest { For deposits	5.00	3.91						5.00	4.39	
Interest paid and accrued { On debentures		11,804		110	15,164				24,411	227,992
Interest paid and accrued { On deposits	15,394	15,753							11,698	
Cost of management	4,627	8,465	2,684	4,729	4,949	75	36,966	1,048	6,049	62,587
Invested and secured by mortgage. { In Ontario	187,180	1,149,946	12,500	87,247	73,611	6,800	*x*4,145,268	45,361	21,022	2,483,491
Invested and secured by mortgage. { Elsewhere		5,141		265,037	142,784					3,497,621
Mortgages by instalments		14,743	12,500			6,800				
Mortgages at stated period	187,180	1,140,344		352,284	216,395		4,145,268	45,361	21,022	5,981,112
Average interest on total amount secured by mortgage.	6.50	5.57	9.00	7.00	6.50	6.35	6.00	6.50	6.23	6.53
Average interest on amount loaned on mortgage in year.	6.50	6.30	9.00	7.50		6.35	5.87	6.50	6.37	6.17
Mortgages on which compulsory proceedings have been taken { Number	2	16			2					167
Mortgages on which compulsory proceedings have been taken { Amount	16,727	62,100			14,518					193,644
Value of mortgaged property held for sale		298,786			81,606		58,650			77,815
Amount chargeable against such property		297,204			81,606		72,157			86,016

† Including $201,948 paid in anticipation of calls. ‡ Including $1,923,411 for High Court of Justice, and $2,398,787 for trusts and agencies.
* Secretary's accounts inaccurate. *x* Including $81,948 lunatics' estates. *y* Stocks of banks, loan, insurance and trust companies.
z Dominion securities, Consols and bonds. ¶ These are the same figures as given in the report for 1892. The financial year of this Company ends March 31st.

Schedule.	Trusts Corporation of Ontario, Toronto.	Toronto Land and Investment, Toronto.	Union Loan, Toronto.	Western Canada Loan, Toronto.	York County Loan, Toronto.	Ontario Permanent Building, Woodstock.	Oxford Permanent Loan, Woodstock.
Capital Stock.	$	$	$	$	$	$	$
Capital authorized	1,000,000	500,000	1,000,000	3,000,000	10,000,000	5,000,000	270,000
Capital subscribed	800,500	400,000	1,000,000	3,000,000	300,000	151,000	243,300
Liabilities.							
Liabilities to stockholders :							
Stock fully paid up	.....	89,600	599,680	1,000,000	2,707	.....	232,400
Stock on which has been paid	76,200	154,130	79,965	500,000	.....	10,092	2,271
Accumulating stock	.....	.....	.....	.....	13,449	.....	.....
Reserve fund	.....	75,000	260,000	770,000	.....	.....	20,500
Dividends declared and unpaid	.....	7,323	26,967	75,000	.....	.....	8,089
Contingent fund and unappropriated profits	10,232	10,219	28,537	78,462	1,570	486	5,861
Total	86,432	336,272	995,149	2,423,462	17,726	10,578	269,121
Liabilities to the public :							
Deposits	.....	10,644	393,257	1,009,935	.....	.....	132,527
Debentures payable in Canada	.....	7,200	120,817	374,769	.....	.....	1,050
Debentures payable elsewhere	.....	4,867	1,200,544	3,045,281	.....	.....	.....
Interest on debentures due and accrued	.....	313	.....	33,517	.....	.....	2
Interest on deposits due and accrued	.....	60	.....	20,200	.....	.....	5,116
Owing to banks	.....	.....	.....	.....	.....	.....	4,064
Other liabilities	*505,544	13,206	.....	651	.....	.....	125
Total	505,544	36,290	1,714,618	4,484,353	.....	.....	142,884
Assets.							
Secured loan assets :							
Real estate of—							
General borrowers	417,666	168,999	2,338,008	6,309,992	6,124	10,200	364,671
Directors and executive officers of company	.....	6,034	.....	.....	.....	.....	.....
Held under power of sale	3,100	.....	191,547	389,624	.....	.....	15,870
Shareholders' stock	.....	450	32,201	5,632	3,782	.....	12,043
Directors and officers of company on their stock	.....	3,500	1,500	.....	.....	.....	.....
Otherwise secured	73,929	.....	.....	.....	5,929	378	.....
Total	494,695	178,983	2,563,256	6,705,248	15,835	10,578	392,584

Property assets:							
Municipal and school section securities, cash value							
Office furniture and fixtures	1,000		1,244	2,827	865		200
Cash on hand		60	87	3,783	24		1,033
Cash in banks	96,281	3,001	74,256	81,397	1,002		
Special deposit in banks							
Office premises			65,743	114,560			7,762
Real estate absolutely foreclosed							
Real estate otherwise acquired		190,518					9,526
Other property			5,181				900
Total	97,281	193,579	146,511	202,567	1,891		19,421
Grand total *assets* or *liabilities*	591,976	372,562	2,709,767	6,907,815	17,726	10,578	412,005
Miscellaneous.							
Dividends declared in year — Rate per cent	6.	6.	8.	10.			6½.
Dividends declared in year — Amount	4,199	14,624	53,933	152,588			15,242
Loaned during the year	145,273	17,506	332,272	1,096,616	9,649		118,129
Received from borrowers (principal and interest)	21,738	48,689	476,479	1,491,192			66,555
Received from depositors		16,182	257,510	453,221			150,138
Repaid depositors		11,117	302,365	407,528			123,086
Debentures issued			232,128	184,676			1,050
Debentures repaid		300	166,672	303,759			
Debentures to mature within one year		7,200	297,640	731,350			
Average rate of interest — For debentures		5.00	4.25	4.08			4.50
Average rate of interest — For deposits		5.00	4.00	3.96			4.00
Interest paid and accrued — On debentures		699	57,243	144,586			2
Interest paid and accrued — On deposits		91	15,092	42,785			5,115
Cost of management	9,575	2,040	15,188	56,307	5,920		2,747
Invested and secured by mortgage — In Ontario	420,766	175,033	2,529,555	4,295,838	6,124	10,200	380,541
Invested and secured by mortgage — Elsewhere				2,403,778			
Mortgages by instalments		94,472	1,000,000	6,699,616	6,124	10,200	14,496
Mortgages at stated period	420,766	80,561	1,529,555				366,045
Average interest on total amount secured by mortgage	5.75	6.25	6.50	7.00		6.00	6.30
Average interest on amount loaned on mortgage in year	6.00	6.00	6.25	7.00	6.00	6.00	6.00
Mortgages on which compulsory proceedings have been taken — Number	1	3	31	57			5
Mortgages on which compulsory proceedings have been taken — Amount	2,800	2,110	126,153	186,106			10,936
Value of mortgaged property held for sale	5,300		191,547	389,624			15,870
Amount chargeable against such property	3,100		191,547	389,624			15,870

* Trusts invested under order of High Court of Justice.

TABLE II.—Summary statement showing totals of all companies reporting for the seven years 1887-93.

Schedule.	1893.	1892.	1891.	1890.	1889.	1888.	1887.
Number of companies reported	86	76	71	67	71	64	55
Capital Stock.							
	$	$	$	$	$	$	$
Capital authorized	225,586,938	187,402,249	164,837,249	102,782,249	99,824,249	96,246,249	79,575,583
Capital subscribed	88,582,985	80,278,277	76,152,817	70,672,710	69,694,221	67,939,559	56,114,310
Liabilities.							
Liabilities to stockholders:							
Stock fully paid up	14,843,377	14,449,595	13,727,930	12,498,330	12,149,509	11,617,271	11,342,861
Stock on which has been paid	20,902,527	18,729,198	18,608,795	18,688,567	18,569,883	18,470,826	15,429,167
Accumulating stock	378,753	260,523	100,688	99,836	107,935	205,839	222,602
Reserve fund	10,679,718	10,300,489	9,866,475	9,288,795	8,711,107	8,030,118	7,254,105
Dividends declared and unpaid	1,005,540	960,827	940,995	952,907	985,602	955,644	885,736
Contingent fund and unappropriated profits	1,475,909	1,193,110	1,134,514	1,145,117	1,105,951	828,463	776,092
Total	49,285,824	45,893,742	44,379,397	42,673,552	41,629,987	40,108,161	35,910,563
Liabilities to the public:							
Deposits	17,988,051	19,120,523	18,176,765	17,103,403	16,942,965	16,560,766	17,533,413
Debentures payable in Canada	9,449,278	8,598,440	7,910,676	7,654,504	7,622,256	6,578,122	5,560,622
Debentures payable elsewhere	50,691,596	43,940,267	41,023,249	38,435,990	36,712,825	34,857,050	26,722,070
Interest on debentures due and accrued	467,133	438,862	433,954	397,599	683,322	619,070	587,484
Interest on deposits due and accrued	321,797	301,922	283,310	296,847			
Owing to banks	181,328	143,389	91,480	269,094	214,046	131,903	155,326
Other liabilities	5,817,481	5,184,085	4,837,715	1,386,762	791,742	793,264	678,189
Total	84,916,664	77,727,428	72,757,149	65,544,199	62,967,156	59,540,175	51,177,104
Assets.							
Secured loan assets:							
Real estate of—							
General borrowers	109,196,475	101,976,599	97,780,207	92,001,824	91,536,309	85,578,993	74,954,076
Directors and executive officers of company	176,627	3,609,708	3,381,150	3,006,109			
Held under power of sale	4,488,298	176,476	94,158	182,724	207,965	169,777	252,957

Shareholders' stock	590,202	553,604	521,659	609,797	602,587	708,137	852,267
Directors and officers of company on their stock	93,166	111,342	158,507	147,110	149,375	126,482	177,465
Otherwise secured	3,496,147	2,823,350	2,429,344	2,163,468	2,170,651	2,458,801	2,799,039
Total	118,040,915	109,251,079	104,365,025	98,111,032	94,666,887	89,042,190	79,035,804
Property assets:							
Municipal and school section securities, cash value	1,630,285	1,142,979	1,072,558	892,101	936,271	1,159,113	1,153,165
Office furniture and fixtures	47,140	30,472	24,690	24,424	27,182	30,385	27,372
Cash on hand	84,649	93,522	109,684	101,785	101,376	63,768	74,053
Cash in banks	2,612,808	2,528,627	2,637,761	2,002,822	2,501,983	2,316,875	2,127,308
Special deposit in banks	802,374	1,252,109	1,344,903	640,697			
Office premises	1,638,742	1,480,031	1,270,095	1,028,296	1,001,508	869,650	751,971
Real estate absolutely foreclosed	793,417	708,199	760,200	900,612	1,095,197		
Real estate otherwise acquired	3,501,584	3,105,721	3,465,404	2,589,190	2,283,817	6,166,355	3,917,994
Other property	5,050,574	4,028,431	2,086,226	1,926,792	1,982,922		
Total	16,161,573	14,370,091	12,771,521	10,106,719	9,930,256	10,606,146	8,051,863
Grand total *assets* or *liabilities*	134,202,488	123,621,170	117,136,546	108,217,751	104,597,143	99,648,336	87,087,667
Miscellaneous.							
Dividends declared in year—Rate per cent.	††	7.05	7.12	7.21	7.06	7.28	7.55
Dividends declared in year—Amount	2,474,219	2,356,348	2,309,701	2,250,027	2,202,217	2,152,377	2,021,207
Loaned during the year	20,962,225	23,403,612	19,124,870	18,542,000	21,795,945	18,567,954	17,162,412
Received from borrowers (principal and interest)	26,134,151	24,350,993	22,096,610	20,469,955	21,353,871	20,393,404	18,987,927
Received from depositors	22,396,315	24,321,138	23,968,569	23,347,971	24,734,347	23,001,584	25,283,071
Repaid depositors	23,861,972	23,299,876	23,224,399	23,416,074	24,583,550	24,261,630	25,283,441
Debentures issued	8,970,783	10,372,155	9,400,632	10,564,009	11,337,938	8,736,777	6,263,884
Debentures repaid	7,532,286	6,798,834	6,783,889	8,523,124	7,578,661	5,944,268	4,346,294
Debentures to mature within one year	11,780,399	9,722,875	8,236,001	7,856,937	10,230,949	10,527,983	5,777,979
Interest paid and accrued—On debentures	2,681,983	2,273,183	2,147,903	2,035,921	2,015,084	1,906,741	1,552,621
Interest paid and accrued—On deposits	790,720	794,784	743,903	710,285	680,570	710,636	685,138
Cost of management	988,056	920,383	877,141	846,950	843,390	838,906	685,905
Invested and secured by mortgage	113,937,685	105,849,375	101,373,476	95,245,657	91,574,215	86,728,523	75,494,963
Mortgages by instalments	34,352,992	30,239,197	29,388,316	28,285,503	29,233,503	32,337,689	30,001,162
Mortgages at stated period	79,584,693	75,610,178	71,985,160	66,960,154	62,340,712	54,390,834	45,493,801
Mortgages on which compulsory proceedings have been taken—Number	1,037	884	892	805	767	820	688
Mortgages on which compulsory proceedings have been taken—Amount	2,283,520	2,161,496	2,081,354	1,899,209	1,850,647	1,834,890	1,419,012
Value of mortgaged property held for sale	4,596,590	3,718,669	3,564,646	3,199,209	3,026,619	3,196,160	2,491,788
Amount chargeable against such property	4,488,298	3,609,708	3,451,812	3,006,109	2,860,394	2,969,480	2,190,465

†† The dividend rate per cent. on the total capital paid is 6.85, but if the capital ($2,102,994) paid by companies that have not declared a dividend be deducted, then the rate per cent. would be 7.27.

TABLE III.—Showing comparative statistics of 54 companies reporting for the seven years 1887-93.

Schedule.	1893.	1892.	1891.	1890.	1889.	1888.	1887.
Capital Stock.	$	$	$	$	$	$	$
Capital subscribed	61,340,486	60,698,527	60,381,017	61,280,660	60,331,132	57,335,159	56,048,310
Liabilities.							
Liabilities to stockholders :							
Stock paid in and accumulating stock	29,436,680	29,043,589	28,939,751	28,871,418	28,468,476	27,511,217	26,932,431
Reserve fund	9,754,879	9,577,011	9,230,931	8,927,162	8,369 624	7,666,384	7,241,765
Dividends declared and unpaid	885,861	873,259	867,292	893,632	929,638	899,906	885,736
Contingent fund and unappropriated profits	890,013	823,735	796,109	832,667	801,055	773,730	774,500
Total	40,967,433	40,317,594	39,834,083	39,524,879	38,568,793	36,851,237	35,834,432
Liabilities to the public :							
Deposits	17,099,578	18,200,849	17,658,123	16,893,287	16,823,175	16,519,063	17,533,413
Debentures payable in Canada	8,008,652	7,414,938	6,873,944	7,047,214	7,089,355	5,949,676	5,500,622
Debentures payable elsewhere	39,280,647	38,426,860	35,736,764	33,291,108	31,601,564	29,078,893	26,722,070
Interests on debentures and deposits due and accrued	700,609	664,030	656,673	648,231	638,689	570,858	587,484
Owing to banks	132,126	109,386	62,290	217,175	171,320	114,852	155,326
Other liabilities	687,086	765,955	1,165,976	1,355,309	749,789	714,753	678,189
Total	65,908,698	65,582,018	62,153,770	59,452,324	57,073,892	52,948,095	51,177,104
Assets.							
Secured loan assets :							
Real estate of—							
General borrowers	91,716,532	91,245,604	88,909,392	87,164,087	84,046,586	77,786,343	74,907,069
Directors and executive officers of company	123,393	128,876	59,158	158,724	188,565	164,977	252,957
Shareholders, directors and officers of company on their stock	647,463	650,638	668,951	755,307	748,632	829,150	1,028,519
Otherwise secured	2,761,304	2,593,767	2,399,999	2,141,204	2,125,691	2,413,756	2,799,039
Total	95,248,692	94,618,885	92,037,500	90,219,322	87,109,474	81,194,226	78,987,584

Property assets:							
Municipal and school section securities, cash value	1,395,672	1,061,679	1,003,388	820,251	857,174	1,078,462	1,061,151
Office premises, furniture and fixtures	1,489,211	1,363,402	1,159,643	1,049,333	1,025,157	896,501	779,343
Cash on hand and in banks	2,254,961	3,159,466	3,554,344	2,585,755	2,399,847	2,102,288	2,189,670
Real estate absolutely foreclosed or otherwise acquired	2,954,677	2,715,416	2,674,349	2,493,194	2,468,151	2,528,241	2,203,676
Other property	3,532,918	2,980,764	1,558,629	1,809,348	1,782,882	1,999,614	1,790,112
Total	11,627,439	11,280,727	9,950,353	8,757,881	8,533,211	8,605,106	8,023,952
Grand total *assets* or *liabilities*	106,876,131	105,899,612	101,987,853	98,977,203	95,642,685	89,799,332	87,011,536
Miscellaneous.							
Dividends declared in year	2,136,437	2,154,317	2,144,548	2,138,647	2,097,321	2,032,336	2,017,476
Loaned during the year	16,561,710	19,768,025	16,797,699	17,263,028	20,391,348	17,048,536	17,160,053
Received from borrowers (principal and interest)	22,347,792	22,019,702	19,943,157	19,114,906	19,941,262	18,820,162	18,987,927
Received from depositors	20,508,741	22,480,118	22,977,548	22,856,709	24,419,674	22,918,698	25,283,071
Repaid depositors	21,965,043	22,039,489	22,372,205	23,028,209	24,357,831	24,188,350	25,283,441
Debentures issued	8,225,790	9,636,989	8,554,899	9,908,610	10,505,870	7,958,544	6,263,884
Debentures repaid	6,768,758	6,392,400	6,266,158	7,974,017	6,868,817	5,123,871	4,346,294
Debentures to mature within one year	10,303,181	8,517,144	7,463,630	6,966,372	9,080,986	9,033,705	5,777,979
Interest paid and accrued — On debentures	2,073,300	1,962,292	1,860,951	1,764,534	1,741,483	1,592,484	1,552,621
Interest paid and accrued — On deposits	751,052	767,132	725,271	702,140	676,871	708,708	685,138
Cost of management	778,746	786,702	757,619	767,158	765,390	748,327	684,966
Mortgages on which compulsory proceedings have been taken — Number	920	795	845	738	716	735	688
Mortgages on which compulsory proceedings have been taken — Amount	2,043,606	2,007,059	1,956,779	1,779,796	1,746,794	1,670,733	1,419,012
Value of mortgaged property held for sale	4,024,585	3,248,006	3,059,736	2,799,362	2,611,812	2,719,277	2,475,568
Amount chargeable against such property	3,887,460	3,110,744	2,959,009	2,606,651	2,446,634	2,493,399	2,174,245

LOAN AND INVESTMENT COMPANIES.

TABLE IV. Comparative statement showing the amount loaned in each of the five years 1889-93, with a yearly average for the seven years 1887-93, by the 54 companies that have reported for the full period.

Companies.	1893.	1892.	1891.	1890.	1889.	Average 1887-93.
Toronto :	$	$	$	$	$	$
Bristol and West of England	107,363	110,674	114,406	238,143	234,073	184,613
Building and Loan	228,350	173,000	153,826	285,400	331,079	246,437
Canada Landed Credit	463,104	564,863	681,800	211,297	252,550	544,792
National Investment Association				218,440	316,076	
Canada Permanent Loan	1,922,279	2,037,994	1,612,056	2,115,055	2,276,984	1,928,934
*Dovercourt Land and Building	.....	.....	.....	.....	.....	.....
Farmers' Loan	232,029	374,527	309,709	440,425	391,567	346,377
Freehold Loan	325,593	1,017,265	866,559	1,122,186	1,459,559	986,192
Home Savings	2,254,091	2,231,208	1,935,977	1,464,299	1,586,866	1,726,038
Imperial Loan	272,984	629,006	526,498	351,599	453,068	480,620
Land Security	707,638	522,302	238,483	290,735	619,854	458,575
London and Canadian Loan	575,726	662,348	495,126	627,732	608,605	621,414
North of Scotland Mortgage	519,138	475,187	476,000	456,892	841,811	533,841
Ontario Industrial Loan	22,225	22,338	36,142	59,575	174,431	71,376
People's Loan	170,328	208,641	145,446	161,824	297,205	210,591
Real Estate Loan	87,450	121,043	75,800	170,748	72,894	79,418
Toronto Land and Loan	.....	1,340	3,022	15,259	64,695	19,421
Trust and Loan	581,202	690,864	809,438	1,080,875	776,601	785,485
Union Loan	332,272	396,360	449,661	530,242	672,855	463,823
Western Canada Loan	1,096,616	1,135,999	900,052	1,105,056	1,224,811	1,124,508
London :						
Agricultural Savings	227,716	362,482	179,060	133,798	301,479	246,421
Canadian Savings	176,636	212,802	248,478	185,487	242,036	222,386
Dominion Savings	322,288	720,222	847,696	990,823	276,468	611,515
Empire Loan				68,369	69,694	
Huron and Erie Loan	1,013,895	1,022,274	706,605	737,013	937,176	813,467
London Loan	235,323	1,026,789	506,713	200,470	290,526	422.585
Royal Standard Loan			86,940	44,472	52,106	
†Ontario Investment Association	2,343	8,375	3,493	5,002	6,099	68,593
Ontario Loan	750,097	702,284	645,023	458,585	588,325	626,082
St. Thomas :						
Elgin Loan	129,645	42,954	37,400	30,124	123,682	64,541
Southern Loan	221,091	133,768	93,859	42,942	101,977	110,176
South-western Farmers' Loan	84,305	83,186	35,337	15,957	56,219	51,487
Star Loan	69,295	83,916	54,967	65,314	46,299	61,465
Hamilton :						
Hamilton Provident and Loan	497,258	740,239	747,150	621,370	624,245	685,387
Hamilton Homestead Loan	22,409	19,294	17,364	14,814	10,718	17,888
Landed Banking and Loan	305,208	390,296	385,308	258,147	371,083	339,459
Kingston :						
Frontenac Loan	78,743	117,874	147,916	52,039	70,080	84,786
Ontario Building	84,596	85,317	90,639	31,703	64,173	89,990
Sarnia :						
Huron and Lambton Loan	106,954	117,638	80,352	142,677	156,072	118,534
Lambton Loan	177,999	208,541	133,349	203,750	213,918	202,337
Other places :						
Hastings Loan ..... Belleville	58,325	38,254	96,396	72,004	26,140	57,572
Royal Loan ..... Brantford	126,619	288,399	155,242	154,666	203,467	191,986
Chatham Loan ..... Chatham	77,343	117,820	90,957	48,743	94,627	78,756
Huron and Bruce .... Goderich	24,080	33,074	29,143	46,415	29,854	36,235
Guelph and Ontario... Guelph	245,641	269,422	356,906	248,962	287,584	294,511
Orangeville Building.. Orangeville	2,933	2,700	4,867	2,388	93	2,880
Ontario Loan ..... Oshawa	80,871	90,350	71,147	98,561	102,045	92,341
Metropolitan Loan.... Ottawa	84,021	50,182	39,363	50,408	47,061	51,882
Central Canada ..... Peterborough	771,849	676,409	500,840	741,276	1,684,371	772,221
Crown Savings..... Petrolea	49,214	40,664	29,753	47,565	51,606	37,291
Midland Loan..... Port Hope	223,419	221,724	223,738	180,519	202,514	196,707
Security Loan..... St. Catharines	122,618	153,503	115,396	135,937	134,761	143,242
British Mortgage .... Stratford	172,459	297,729	186,127	157,449	223,988	202,723
Oxford Permanent.... Woodstock	118,129	34,585	19,874	29,497	45,278	47,870
Total for 54 companies	16,561,710	19,768,025	16,797,699	17,263,028	20,391,348	17,855,771

* The loans stated in returns, but mortgages are given for balances due on lands purchased.
† In liquidation.

PART V.

CHATTEL MORTGAGES.

The returns relative to chattel mortgages are made, in accordance with the Statutes, to the Minister of Agriculture. The tabulation of these has been entrusted to this Bureau.

The following statement gives the number of chattel mortgages on record and undischarged for the province for the year ending December 31, 1893, and the four preceding years :

Year ending Dec. 31.	To secure existing debt or present advance.		To secure future indorsation or advance.		Total.	
	No.	Amount.	No.	Amount.	No.	Amount.
		$		$		$
1893	19,342	8,973,118	380	360,267	19,722	9,333,385
1892..... ..	18,927	9,215,753	455	829,724	19,382	10,045,477
1891	18,902	8,595,417	516	908,971	19,418	9,504,388
1890.....	17,271	8,121,316	632	857,542	17,903	8,978,858
1889.....	15,629	6,973,837	585	518,071	16,214	7,491,908

The following statement gives the numbers and amounts of chattel mortgages for the different districts for 1893, and previous three years :

Districts.	1893.		1892.		1891.		1890.	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
		$		$		$		$
Lake Erie	2,679	1,010,557	2,922	1,132,113	2,790	980,671	2,625	936,817
Lake Huron	1,953	664,621	1,847	630,015	1,993	657,862	1,872	618,978
Georgian Bay	2,080	778,813	2,120	936,409	2,006	723,291	1,919	694,746
West Midland	2,784	1,183,616	2,685	1,171,407	2,800	1,293,456	2,463	1,201,424
Lake Ontario	4,957	2,953,316	4,604	2,950,259	4,479	2,552,273	4,306	2,280,734
St. Lawrence & Ottawa	2,880	1,361,047	2,847	1,505,524	2,900	1,379,862	2,475	1,067,231
East Midland	1,516	593,646	1,526	607,160	1,619	610,665	1,576	752,620
Northern Districts	873	787,769	831	1,112,590	831	1,306,308	667	1,426,308
The Province.....	19,722	9,333,385	19,382	10,045,477	19,418	9,504,388	17,903	8,978,858

The following statement gives the numbers and amounts of chattel mortgages given by *farmers* for the year 1893 and previous three years :

Districts.	1893.		1892.		1891.		1890.	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
		$		$		$		$
Lake Erie.....	1,709	424,242	1,898	438,430	1,788	400,273	1,674	443,172
Lake Huron.....	1,299	334,670	1,208	322,432	1,354	326,030	1,429	397,627
Georgian Bay	1,556	392,599	1,603	456,699	1,570	395,805	1,481	357,255
West Midland.....	1,380	478,518	1,376	468,034	1,362	477,591	1,434	528,131
Lake Ontario	1,752	647,269	1,743	662,189	1,776	708,373	1,666	729,368
St. Lawrence & Ottawa	1,422	374,087	1,426	371,659	1,513	384,306	1,376	352,903
East Midland	1,098	324,672	1,040	320,573	1,107	320,606	1,123	355,005
Northern Districts.....	468	83,800	480	77,961	519	84,617	378	59,836
The Province.....	10,684	3,059,857	10,774	3,117,977	10,989	3,097,601	10,561	3,223,297

CHATTEL MORTGAGES—BY COUNTY DIVISIONS.

TABLE I. Showing by County Municipalities of Ontario the total number and amount of Chattel Mortgages and Renewals on record and undischarged on January 1st, and December 31st, 1893.

Counties or Districts.	Chattel mortgages on record January 1st, 1893.				Chattel mortgages on record December 31st, 1893.			
	To secure existing debt.		For future indorsation.		To secure existing debt.		For future indorsation.	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
		$		$		$		$
Algoma	151	353,457	....	.....	143	214,246	1	2,500
Brant	430	188,718	5	1,813	454	186,468	4	2,220
Bruce	936	278,462	9	900	938	295,735	27	4,092
Carleton	615	387,286	11	10,127	704	467,778	8	3,796
Dufferin	329	96,978	....	.....	341	113,616	....	.....
Elgin	478	179,241	3	52,155	440	149,649	6	10,601
Essex	527	163,560	52	31,946	453	162,932	28	8,791
Frontenac	444	170,422	....	.....	443	207,398	....	.....
Grey	1,208	518,482	5	2,337	1,177	299,380	3	2,750
Haldimand	219	55,470	....	.....	184	49,912	....	.....
Haliburton	74	13,030	....	.....	66	11,169	....	.....
Halton	117	78,422	....	.....	124	73,751	1	195
Hastings	771	251,546	22	14,322	762	213,451	35	10,932
Huron	450	181,038	7	2,021	446	178,609	8	6,941
Kent	1,070	333,037	5	75,500	1,048	378,977	7	26,211
Lambton	387	150,492	58	17,102	455	140,521	79	38,723
Lanark	219	118,897	10	3,566	193	69,974	1	427
Leeds and Grenville	432	161,746	10	4,655	432	134,182	14	20,872
Lennox and Addington	203	85,411	7	1,920	217	82,275	5	3,155
Lincoln	261	128,726	12	18,749	281	158,823	10	28,667
Manitoulin	108	57,415	5	189,021	102	51,113	1	6,000
Middlesex	725	264,508	10	2,829	782	275,669	3	4,700
Muskoka	244	99,144	3	4,000	251	130,136	1	60
Nipissing	93	49,218	2	1,100	120	51,241	4	2,428
Norfolk	299	84,644	....	.....	278	72,643	....	.....
Northumberland and Durham	787	317,082	....	.....	743	353,457	....	.....
Ontario	447	244,350	32	12,677	480	221,227	19	11,864
Oxford	241	116,116	16	47,474	291	168,342	4	4,800
Parry Sound	149	194,973	6	77,350	170	160,156	4	91,750
Peel	183	77,848	....	.....	155	70,090	4	2,463
Perth	269	129,850	14	5,301	240	94,515	14	6,579
Peterborough	283	118,168	38	47,144	292	148,526	13	3,387
Prescott and Russell	223	320,065	....	.....	207	122,875	....	.....
Prince Edward	208	60,082	8	3,054	221	53,810	3	517
Rainy River	35	59,199	....	.....	34	32,336	....	.....
Renfrew	260	66,788	7	4,193	273	71,262	3	928
Simcoe	907	415,590	....	.....	900	476,683	....	.....
Stormont, Dundas and Glengarry	381	145,084	25	25,364	364	170,289	16	5,836
Thunder Bay	31	26,762	4	951	39	43,551	3	2,252
Victoria	322	149,624	16	13,326	327	188,747	21	17,434
Waterloo	171	92,800	3	2,800	192	114,384	5	2,728
Welland	261	143,184	8	13,376	230	148,215	5	2,626
Wellington	453	214,696	19	7,524	453	208,895	1	700
Wentworth	544	320,422	16	18,177	618	314,117	9	7,890
York	1,982	1,553,720	7	116,950	2,279	1,641,993	10	14,452
The Province	18,927	9,215,753	455	829,724	19,342	8,973,118	380	360,267

CHATTEL MORTGAGES—BY OCCUPATIONS.

TABLE II. Showing by Occupations or Callings of Mortgagors, the number and amount of Chattel Mortgages and Renewals on record and undischarged on January 1, and December 31, 1893, respectively, in the Province of Ontario.

Occupations.	Chattel Mortgages on record January 1st, 1893.				Chattel mortgages on record December 31st, 1893.			
	To secure existing debt.		For future indorsation.		To secure existing debt.		For future indorsation.	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
		$		$		$		$
Agent	283	93,574	12	4,828	263	103,971	3	940
Bailiff	19	2,963	....	.....	17	2,390	....	.....
Baker and confectioner	71	18,470	3	1,307	83	20,878	2	295
Barber	75	16,736	3	530	74	12,016	1	165
Barrister and solicitor	60	61,812	3	951	61	85,866	....	.....
Billiard room	13	4,879	....	.....	4	808	....	.....
Blacksmith	103	21,198	....	.....	132	25,790	....	.....
Boarding house keeper	19	3,592	....	.....	19	4,188	....	.....
Bookkeeper and accountant	53	19,158	2	375	53	32,167	1	200
Brickmaker	46	50,289	1	3,507	30	45,135	....	.....
Builder and contractor	148	95,982	4	30,075	135	161,320	1	400
Butcher	158	41,896	13	3,394	163	44,643	5	880
Cabinetmaker	30	17,977	1	300	27	14,692	1	445
Cabman	54	11,921	....	.....	69	20,165	....	.....
Carpenter	151	27,638	2	475	146	19,117	1	100
Carriagemaker	46	24,472	....	.....	31	10,636	....	.....
Carter	13	8,878	1	120	34	8,001	....	.....
Clergyman	14	4,654	1	1,175	18	6,743	....	.....
Clerk	287	80,421	4	980	316	86,927	2	398
Coal and wood dealer	20	15,606	....	.....	5	4,141	....	.....
Cooper	14	2,282	....	.....	10	2,072	....	.....
Dairyman	61	18,072	1	125	91	33,752	3	552
Druggist	59	75,196	1	720	65	92,340	2	9,536
Engineer	48	17,171	1	975	39	11,026	1	693
Farmer (including yeoman)	10,576	3,062,349	198	55,628	10,489	3,003,109	195	56,748
Furniture dealer	28	16,172	1	800	19	22,727	....	.....
Gardener	70	9,432	....	.....	74	13,539	3	1,796
Gentleman	158	89,608	7	36,336	166	75,109	1	100
Harnessmaker	40	8,407	1	500	29	8,298	2	295
Hotel-keeper and liquor shop	583	730,942	21	20,185	597	693,726	21	19,891
Jeweller and watchmaker	46	56,966	5	1,828	42	29,599	2	1,950
Laborer	370	42,167	9	1,119	423	43,221	6	672
Laundryman	13	9,744	....	.....	11	5,326	....	.....
Livery keeper	193	123,198	6	4,733	188	126,783	2	195
Lumberman	140	1,018,495	17	272,242	131	586,103	9	94,143
Machinist	53	25,207	3	1,105	51	37,006	....	.....
Manufacturer	248	638,805	17	215,395	256	413,756	18	54,542
Marble dealer	10	2,369	1	150	6	7,922	....	.....
Married woman	440	167,756	14	5,045	483	210,004	13	18,811
Merchant	579	749,597	32	94,662	650	848,751	31	47,973
Miller	73	37,054	1	550	56	34,276	1	250
Moulder	12	1,602	....	.....	15	1,939	....	.....
Painter	63	13,987	2	170	70	13,507	1	90
Photographer	47	18,318	....	.....	44	10,062	....	.....
Physician	62	41,685	1	1,250	63	46,560	....	.....
Plasterer	8	682	....	.....	8	758	....	.....
Plumber	16	7,085	....	.....	24	10,651	....	.....
Printer and publisher	180	204,550	2	1,698	168	181,075	2	2,045
Salesman	16	2,028	....	.....	15	3,634	....	.....
Sawmill man	89	56,451	6	39,400	85	60,576	5	11,250
Shoemaker	33	7,452	2	120	35	6,677	2	1,357
Tailor	63	21,891	2	703	54	20,101	2	2,100
Teamster	275	37,094	5	629	265	34,774	3	437
Tinsmith	36	7,936	....	.....	37	10,704	1	363
Traveller	45	14,539	1	75	70	23,875	....	.....
Undertaker	26	11,270	1	1,500	37	25,533	....	.....
Unmarried woman	60	23,581	2	285	59	16,650	2	2,007
Widow	175	58,230	3	1,063	203	56,291	3	636
All others	2,256	1,164,267	42	22,716	2,534	1,441,712	32	28,012
Total	18,927	9,215,753	455	829,724	19,342	8,973,118	380	360,267

CONTENTS:

PART VI—TECHNICAL EDUCATION.

TWELFTH ANNUAL REPORT

OF THE

BUREAU OF INDUSTRIES

PART VI.

1893.

To the Honorable John Dryden, Minister of Agriculture.

SIR,—I have the honor to present herewith a report, prepared in this Bureau, dealing with the subject of Technical Education. The report, among other things, gives a sketch of the origin and work of the evening technical classes of Toronto. This publication forms part VI of the report of the Bureau of Industries for 1893, the part sometimes designated as the "Labor Report." It has been thought that the matter contained herein will be of interest to all persons desiring to see the working classes still further improved.

Your obedient servant,

C. C. JAMES,
Secretary.

TORONTO, November 1, 1894.

PART VI.

TECHNICAL EDUCATION.

SCHOOL OF PRACTICAL SCIENCE, ONTARIO.

In the session of 1877 the Legislative Assembly gave its sanction to the establishment of a School of Practical Science on the basis proposed in a memorandum of the Minister of Education, confirmed by the Lieutenant-Governor in Council on the 3rd day of February, 1877.

By the scheme thus approved of, the Government effected an arrangement with the Council of University College whereby the students of the School of Practical Science enjoyed full advantage of the instruction given by its professors and lecturers in all the departments of science which were embraced in the work of the School.

This arrangement was brought to an end in 1889 by the transfer of the departments in science above referred to, from University College to the University of Toronto under the operation of the University Federation Act.

In order that the students of the School might continue to enjoy the advantage of the instruction in the above departments, the Senate of the University of Toronto passed a Statute in October, 1889, affiliating the School to the University, which Statute was confirmed by the Lieutenant-Governor in Council on the 30th day of October, 1889.

By an Order in Council, approved by the Lieutenant-Governor, on the 6th day of November, 1889, a Principal was appointed, and the management of the School was entrusted to a council composed of the Principal as chairman, and the Professors, Lecturers and Demonstrators appointed on the Teaching Faculty of the School.

There are five regular Departments of Instruction in each of which Diplomas are granted :

1. Civil Engineering (including Sanitary Engineering).
2. Mechanical and Electrical Engineering.
3. Mining Engineering.
4. Architecture.
5. Analytical and Applied Chemistry.

The instruction given in each of these departments is designed to give the student a thorough knowledge of the scientific principles underlying the practice in the several professions, and also to give him such a training as will make him immediately useful when he enters into active professional work.

In order to afford an opportunity of taking full advantage of the engineering, chemical and assaying laboratories a fourth or post-graduate year has been established. In the regular three years' course the laboratory and practical work is of such a nature that it can be successfully carried on in the intervals between lectures. All laboratory work which cannot be advantageously pursued in connection with a fixed time table for lectures has been reserved for the fourth year. The fourth year is thus essentially a laboratory year. Lectures are given in connection with the work as occasion requires. Graduates

who fulfil the requirements of the fourth year are eligible for the degree of Bachelor of Applied Science (B.A.Sc.) University of Toronto. Graduates in the Department of Civil Engineering are also eligible for the degree of Civil Engineer (C.E.), University of Toronto, after three years of practical work.

The Regulations governing the School of Practical Science, approved by His Honor the Lieutenant-Governor in Council on the 19th June, 1893, are as follows:

1. The internal management and discipline of the School of Practical Science shall be vested in a Council (of which the Principal shall be Chairman) consisting of the Professors, Lecturers and Demonstrators appointed by the Lieutenant-Governor in Council on the staff of the School.
2. The Academic Year shall consist of two Terms, the First Term extending from 1st October to 23rd December, and the Second Term from 8th January to 1st May.
3. A Diploma shall be granted to each student who shall have completed to the satisfaction of the Council, the Regular Course in any of the following five Departments:
   (1) Civil Engineering (including Sanitary Engineering).
   (2) Mechanical and Electrical Engineering.
   (3) Mining Engineering.
   (4) Architecture.
   (5) Analytical and Applied Chemistry.
4. The Regular Course for the Diploma of the School in each Department shall be three years.
5. Students may enter the Regular Course in any one of the above Departments either (*a*) by presenting certificates of having passed the Matriculation Examination in any University in Her Majesty's Dominions or the High School Leaving Examination of the Province of Ontario, or (*b*) by presenting certificates of having had at least one year's experience in some recognized engineering, architectural or manufacturing work or business, and passing an examination in the following subjects:
   Arithmetic.—Fundamental rules, metric system, fractions, decimals, powers, square root, mensuration, percentage, interest.
   Algebra.—Elementary rules, easy factoring, highest common measure, lowest common multiple, square root, fractions, ratio, simple equations of one, two or three unknown quantities, indices, surds, quadratic equations of one and two unknown quantities.
   Euclid.—Books I, II and III; deductions.
   English.—Dictation, composition.
6. The Council shall have the power of dealing with special cases provided the candidates are sufficiently prepared to take their places in the classes.
7. Special students may be permitted to attend such lectures or courses of instruction, or of practical work, as the Council may think proper.
8. Certificates of attendance and standing may be given upon due examination to special students, and such students shall not be required to pass an entrance examination.
9. At the end of the Academic Year, examinations will be held in the different subjects taught. Candidates for Diplomas and Certificates are required to enter for these.
10. All regular students shall be in attendance at the school during the whole of each term, unless exempted by special permission of the Council. The term will not be allowed to any student who has attended less than three-fourths of the required lectures and practical lessons, or who has been reported to the Council for bad conduct and adjudged guilty thereof.
11. Students of the school shall attend such courses of lectures at the University of Toronto as may be required of them by the Council.

Admission.

The conditions of admission for regular and special students are stated in clauses 5, 6, 7 and 8 of the Order-in-Council.

For information regarding the conditions for matriculation in the Universities, application must be made to the registrars of these institutions.

Information respecting the High School Leaving Examination may be obtained from he Education Department, Toronto, or from any Principal of a High School or Collegiate nstitute.

Students intending to write at the High School Leaving Examination for the purose of entering the School of Practical Science, may do so without having previously assed the Primary Examination. Their papers must be endorsed "For admission to chool of Practical Science."

The only examination held in the School of Practical Science for the purpose of esting qualifications for admission, is that mentioned in clause 5 (*b*) Order-in-Council.

Sessional and other Fees, Deposits, etc.

The sessional fees for instruction in any of the regular courses are as follows:

First year.....Thirty-four dollars.
Second year.....Forty-four dollars.
Third year.....Fifty-four dollars.

These are payable in two equal instalments, one in each term. A discount of two ollars will be made on each instalment if paid before the end of the first calendar month f the term in which it is due. There is no extra fee for the Diploma.

Deposits.

General	$2 00
Chemical laboratory	3 00
Mineralogical laboratory	7 00

Dues.

Library	$1 00

For maintenance of Physical Laboratory.

Departments.	I. Year.	II. Year.	III. Year.
	$ c.	$ c.	$ c.
ivil and Mining Engineering		1 50	1 00
Iechanical and Electrical Engineering	1 00	1 50	3 00
rchitecture		1 00	2 00
nalytical and Applied Chemistry	1 00	1 50	3 00

The discount on the instalment of sessional fees payable in the first term will not be llowed unless all deposits and other dues are paid at the same time.

Estimated Expenses of a Regular Course.

Sessional Fees	$120 00
Books, instruments, drawing materials, laboratory fees, etc., about as follows: I. Year, $60; II. Year, $40; III. Year, $30	130 00
Total for Regular Course about	$250 00

Information as to instruments and materials will be given to the students on regisration at the beginning of the Session.

Fellowships.

The following fellowships have been established, open to graduates of the school :— Civil Engineering ; Mechanical Engineering ; Surveying ; Metallurgy and Assaying ; Analytical and Applied Chemistry.

Each fellowship is of the value of $500 per annum.

The Fellows are required to take such portions of the work of instruction as may be assigned to them by the Council.

Applications for these fellowships are to be made annually to the Secretary on or before the 20th day of September.

Honors.

Honors will be granted in each department to students who pass in all the subjects and obtain at least 66 per cent. of the total number of marks allotted to the department at the annual examinations.

The aims of the School of Practical Science, situated as it is in the City of Toronto, the capital of the Province of Ontario, as well as the theory of education upon which these aims are sought to be attained, are most clearly and succinctly defined in the following :

Address Delivered by Professor Galbraith, at the Opening of the Engineering Laboratory of the School of Practical Science, February 24, 1892.

Mr. Chairman, Ladies and Gentlemen :

The subject of the paper which I propose to read this evening is "Technical Education."

In selecting this subject I was influenced not only by its appropriateness to the occasion, but also by the fact, as it appears to me, that there is more or less vagueness in the public mind as to its objects and methods.

The word technical is derived from the Greek *techne*, an art, handicraft or trade. The idea involved in this word is the bringing forth or making of material things as distinguished from thoughts and mental images. It is not always safe, as you know, to infer the modern meaning of a word from its derivation. Nevertheless it happens that one of the great branches of technical education, as at present understood, is exactly defined by the old Greek word, namely, the training of apprentices in the arts and handicrafts. Technical education in this sense has been in existence since the days of Tubalcain, the instructor of every artificer in brass and iron ; and to it we owe the greater part of the material progress which has been made since the world began.

In these latter days, however, a new application has been found for the term. In consequence of the growing competition for trade among civilized nations, and the recognition of the relations of art and science to production, schools for giving artistic and scientific training to those engaged in industrial pursuits are becoming acknowledged as one of the necessities of modern times. These are known as technical art schools and technical science schools. It is to the latter alone that I propose to direct your attention this evening.

From the time of the revival of learning in the middle ages down to the present century the energies of the universities and schools have been directed in channels having little or no connection with the material necessities of civilized beings. The sole exception has been the schools of medicine. That this should have been so may seem strange, but it appears to me that we have not far to go for the explanation.

The universities and schools are not the originators of knowledge. They are simply collectors and distributors. Natural science is a thing of modern growth. It had to reach a certain stage of development before the community could become interested in it ; and not until a demand for scientific knowledge had been created could it be admitted into schools of learning. How long, for example, is it since the physical sciences have been made a part of our Ontario school curriculum.

Herbert Spencer, in an essay on Education, says: "That which our school courses leave almost entirely out we thus find to be that which most nearly concerns the business of life—all our industries would cease were it not for that information which men begin to acquire as they best may after their education is said to be finished. And were it not for this information, that has been from age to age accumulated and spread by unofficial means, these industries would never have existed. Had there been no teaching but such as is given in our public schools, England would now be what it was in feudal times. That increasing acquaintance with the laws of phenomena, which has through successive ages enabled us to subjugate nature to our needs, and in these days gives the common laborer comforts which, a few centuries ago, kings could not purchase, is scarcely in any degree owed to the appointed means of instructing our youth. The vital knowledge, that by which we have grown as a nation to what we are and which now underlies our whole existence, is a knowledge that has got itself taught in nooks and corners, while the ordained agencies for teaching have been mumbling little else but dead formulas."

It seems to me that these words of Spencer should be taken rather as an indictment of the community than of the schools. There has been, and may yet be to some extent, opposition on the part of men permeated with the older culture to the introduction of the physical sciences into the schools, but this opposition is disappearing as the sciences grow and prove their fitness for a place in the educational system.

One of the main obstacles to the introduction of the teaching of science, even after its importance had been fully recognized, was the large outlay required for the necessary apparatus. Scientific investigation is both qualitative and quantitative. The teaching of science on the qualitative side consists in the enunciation and illustration of principles. The apparatus required for this purpose is comparatively inexpensive, and may be improvised to a great extent by the teacher. In many cases no apparatus at all is required —simple observation of natural phenomena being sufficient. The case is altogether different when the principles of science are to be investigated quantitatively. Instruments for making precise observations and measurements must be used. These instruments are expensive and cannot be made by teacher or student. The highest mechanical skill is required for their manufacture, and patience, time and opportunity for their use. Laboratories have to be equipped, and the whole time of teacher and student given up to work with the hand, eye and ear.

It is not to be wondered at, that the introduction of science into the curriculum has been slow. Now that it has been accomplished the question naturally arises, Wherein exists the special necessity for the establishment of technical scientific schools? I think it may be answered thus:

In all schools for the teaching of professions and callings, whether we choose to consider them technical or not, it is an admitted necessity that the teachers should be practical men in such professions and occupations. What would be thought of a medical school in which the teachers were not physicians? of a law or divinity school in which they were not lawyers and theologians? In like manner the teachers in technical schools should be engineers, architects, manufacturers, artisans, miners and agriculturists if it is possible to get them. The difficulty which exists at present to a large extent, but which will disappear with the progress of technical education, is that there are very few men in the above professions and occupations who have had a sufficient training in science to make them successful teachers—their knowledge is practical, not scientific. The teacher in a technical school should be more or less acquainted with the various trades—with the methods in vogue for handling and transforming material. He should know how things are done and made in actual life and on the commercial scale. He ought to have a better perspective, so to speak, than the purely scientific man in reference to the needs of his students, and should be able to meet them more nearly on their own plane, and interest them in science by selecting his illustrations from their work, actual or prospective. It is of the first importance that he should keep himself informed in the latest manufacturing processes. This cannot be done by reading. The text-books are always years behind the times in this respect. Manufacturing and engineering periodicals are better, but still they convey little or no idea of the scale on which work is done. Personal

observation, travel, and engaging in outside work whenever possible are the only methods whereby the teachers in technical schools can gather the proper material for illustrating scientific principles and maintaining the interest of students in their work.

The principal work of a technical school is the teaching of science and not, as many suppose, to turn out fully fledged engineers, architects, manufacturers and tradesmen; all that it can pretend to do is to turn out partially educated men. The graduates must supplement the work in the school by practical experience in after life before they acquire the right to call themselves practical men.

The practical work of the school differs in many respects from the practical work of actual life. Where it is work of the same kind, as for instance, drawing, designing, the use of surveying instruments, lathe work, smith work, etc., yet the feeling of reality and responsibility is lacking. It is a very different thing to make mistakes in school work from making mistakes in similar work in actual life. A man is vastly more impressed by the necessary punishment which follows mistakes in the serious business of life than he can be by the arbitrary penalties instituted by the faculty.

Again there is a great body of knowledge necessary to complete a man's practical education which it would be only an utter loss of time to attempt to give in a school, simply because there are no well-defined threads of scientific thought upon which to string it. Three-quarters of the information to be found in an engineers' hand-book would be useless in the curriculum, although all-important in practice. Such knowledge becomes useful only when impressed by experience.

The establishment of engineering laboratories marks a new departure in technical education. Surely, it will be said, the work in these laboratories is practical. So it is, but not perhaps in the sense in which the question is put. The steam engine in an engineering laboratory is not used for the same purpose as the factory engine. In the shop it is used for manufacturing purposes; it is placed in the laboratory for the purpose of being experimented upon. In the laboratory it is tried at different speeds, worked condensing and non-condensing, with varying steam pressures, with and without steam-jacketing, with different amounts of lead and cushioning, with different counterbalances for crank and connecting-rod, with varying clearances, with simple and multiple expansion. The work done at the main shaft is accurately measured; likewise the work in the cylinder—the feed water and the condensing water are weighed—the degree of dryness of the steam determined. In short, in the laboratory all the conditions which may affect actual practice are experimentally investigated. It is only in this way that the principles governing the construction and action of engines can be fully determined.

What would the employer do with a man who should attempt any such work with the factory engine? He would simply give him to understand that his usefulness was gone, and that he had better look for employment at the School of Practical Science.

Again, since the teaching of principles is the main object of a school of applied science, it seldom happens to be useful to complete any of what is ordinarily called practical work, as would be necessary in actual life. To do so would occupy too much time. Practical constructions involve so many and various considerations and methods, that the attempt to complete them would simply be reverting to the old state of affairs when the apprentice gained his knowledge altogether on actual work. The study of the sciences would be so much interrupted and confused by such a method as to be of very little value. The practical work of a technical school, in so far as it is of the same kind as that of after life, must be selected and pursued rather as illustrating the principles of the special science under consideration than for the sake of the work itself.

In practical life, on the other hand, the result is the thing aimed at, and it matters nothing to those who pay for this result how it was arrived at, whether by rule of thumb or by the application of scientific principles. The work of the school is more analytic than synthetic, more destructive than constructive. The student pulls, as it were, machines to pieces in order that in after life he may learn to put them together. His proper work is investigation and experiment. After he graduates, his work on the contrary is construction and design. It would not be advisable to give equal prominence to

both kinds of work in the school. The time is too short and the feeling of responsibility which should govern construction and design is absent and cannot be artificially excited. Make-believe work is essentially false and unscientific.

The arrangement of the courses of study in the School of Practical Science is in accordance with these principles. The departments of instruction are civil, mining, sanitary, mechanical and electrical engineering—architecture, analytical and applied chemistry, and mineralogy and geology.

In addition to the instruction given in the school the students take such work in the University of Toronto as is necessary. The University work is mathematics, physics and chemistry. Up to the present session mineralogy and geology have also been taken in the University. The greater part of this work will henceforth be taken in the school.

Through the exertions of the Hon. the Minister of Education and the liberality of the Provincial Legislature an engineering laboratory has been established and is now approaching completion. The Dominion Government have also contributed their quota by relieving the school from the payment of customs duties on such apparatus and machinery as it was found necessary to import from abroad.

It may be of interest to you to have a short description of the main features of this laboratory.

It consists of three departments: First, the department for testing materials of construction. Second, the department for investigating the principles governing the applications of power. This department is sub-divided into the steam laboratory, the hydraulic laboratory and the electrical laboratory.

The third department may be termed a geodetic and astronomical laboratory, as the work to be done in it, which relates principally to standards of length and time, is of special importance in these sciences.

In order to prepare specimens for the testing machines a shop has been fitted up with a number of high-class machine tools specially suited for reducing the specimens to the requisite shapes and dimensions with a minimum of hand labor. It is also fitted with the necessary appliances for making ordinary repairs.

The machines in the department for testing materials are the following:

An Emery 50-ton machine built by Wm. Sellers & Co., of Philadelphia, for making tests in tension and compression.

A Riehle 100-ton machine for making tests in tension, compression, shearing and cross-breaking. It will take in posts twelve feet long and beams up to eighteen feet in length.

An Olsen torsion machine for testing the strength and elasticity of shafting. This machine will twist shafts up to sixteen feet in length and two inches in diameter.

The last machine in this department is a Riehle 2,000 lbs. cement testing machine. The cement testing laboratory is fitted with the usual accessories.

These machines are all of the latest and most improved designs, and, with the exception of the cement machine, there are at present no duplicates of them in existence.

In the power department there are under the division steam, two boilers, a Babcock & Wilcox 52 horse-power and a Harrison-Wharton 12 horse-power boiler. The engine is a 50 horse-power Brown automatic cut-off engine built by the Polson Iron Works Co., Toronto, specially for experimental purposes. It is steam jacketed and has three alternative exhausts, to the open air, to a jet condenser and to a Wheeler surface condenser kindly presented to the School by Mr. F. M. Wheeler, of New York, the inventor. There are also a Blake circulating pump, a Knowles air pump and a Blake feed pump, the latter of which was a gift from the manufacturers. The engine is arranged so that it may be compounded when there are funds for the purpose. To have built the engine compound in the first place was deemed inadvisable as the money was urgently needed for other work.

A machine now being constructed by the Riehle Bros., of Philadelphia for measuring journal friction and testing lubricants, will shortly be placed in position. It is fitted with an ordinary railway car journal and box. The maximum loads occurring in practice can be applied. The maximum speed will be 50 miles an hour. This machine is

expected to be an improvement upon any yet built for a similar purpose. I received a letter a few days ago from a railway in the Western States which intends to order one if we give a satisfactory report.

The hydraulic division of the laboratory is furnished with a three throw pump with double acting cylinders, built specially for the School by Northey & Co., of Toronto. It has adjustable strokes and has a maximum capacity of half a million gallons per day. It has been designed to produce an extremely steady pressure, this being requisite for hydraulic experiments. The maximum head under which it works is 230 feet. There will be practically no addition to the running expenses of the laboratory due to the working of this pump as the same water will be used over and over again, and the power will be furnished by the experimental engine. In order to make engine experiments the coal has to be burned in any case and the necessary resistance supplied either by a brake or otherwise. Driving the pump is one method of doing this. A three feet turbine wheel of the jet type built by the Fensom Elevator Co., of Toronto, forms a part of the same equipment. The pump furnishes the power for this wheel. There are two large tanks built by the Doty Engine Co., of Toronto, for experiments on the discharge of water through orifices and over weirs.

The above apparatus is arranged with a view to testing water meters, measuring the discharge of fire streams and various other hydraulic investigations within the capacity of the plant.

The electrical division of the laboratory is equipped with the following dynamos:

Edison, Ball, Thomson-Houston, two Gülcher machines and a Westinghouse alternator with transformers, a Crocker-Wheeler, and a Kay motor, also two small fan motors.

There are in connection with it a Roberts storage battery, a gravity primary battery and a fair equipment of lamps, arc and incandescent, of different types.

The power department is equipped with the usual measuring instruments, indicators, gauges, gauge testing apparatus, scales, brakes, dynamometers, ammeters, voltmeters, resistances, galvanometers, etc.

In the geodetic and astronomical department are 100 feet and 66 feet standard of length—a 10-feet Rogers comparator with graduating attachment; a Howard astronomical clock and electro-chronograph; a Troughton & Simms 10-inch theodolite and all the ordinary surveying instruments.

That you may not leave this building to-night under the mistaken impression that our equipment is complete, and that we can spend no more money, I propose to conclude this paper by touching upon some of our most pressing wants.

The department of architecture has recently been established and is provided with a good collection of photographs and drawings. A large number of casts, models and plates will be required, however, to complete the equipment.

The oldest laboratory in the School is that in the department of analytical and applied chemistry. It is well equipped for general work in qualitative and quantitative analysis; also for the quantitative analysis of food, air, water, fuels and illuminating gas. Special apparatus is now urgently needed for the analysis of iron, steel, and other materials of construction to supplement the testing work of the engineering laboratory.

The important department of mineralogy, assaying and mining has at present a very meagre laboratory equipment. In view of the interest which is now being taken in Canadian mining, it is to be hoped that this state of affairs will be immediately improved and that the School of Practical Science may be enabled during the next session to offer to those who may desire it, a complete course of instruction in mining engineering and metallurgy.

In sanitary engineering we have at present no special laboratory. Our hydraulic plant can be utilized largely in connection with this department, but in addition a collection of models is very necessary for purposes of illustration.

As cities increase and population grows denser, sanitary problems become more complicated and have to be dealt with by communities and governments instead of

depending on individual action. As a consequence, sanitary engineering is becoming a most important branch of the profession, and a prominent position should be assigned to it in the curriculum of a technical school.

The rapid development of electrical lighting is bringing into prominence the question of the measurement of the illuminating power of electric lights. Special difficulties surround this problem, and it is desirable that our electrical laboratory should be furnished with the means for making such investigations.

It would greatly facilitate the work of the School in all departments to have means for making photographic lantern slides. Ordinary charts and maps soon grow out of date and take up a large amount of room. A photographic outfit would give the means of making lantern-slides of all the latest illustrations of machinery and construction that are published in engineering, manufacturing and architectural journals and of exhibiting them to large classes.

Another pressing want is a good technical library. If it were not for our periodicals, we should have no library at all ; and while the Toronto Public Library has a good collection of works on technical subjects, yet they are for all practical purposes beyond the reach of our students.

Collections of rocks, minerals and products illustrating various stages of manufacturing are very much needed in the departments of mining and applied chemistry.

In view of these pressing demands the question will naturally arise, What is to be the outcome of this technical education—where are the young men to find employment? If the country cannot support them, what justification can there be for the expenditure? It seems to me that this is a question in political economy and might properly be referred to the distinguished head of that department in the University of Toronto or to our friends the Trades and Labor Council.

My answer can be only vague and general. I would reply by asking why we have gone into debt for the purpose of building canals and railways, docks and harbors—why have we built expensive houses of parliament, churches and jails, sewers and waterworks, colleges and poor-houses? Is it not because we feel that we are as good as our brothers across the sea or as our cousins south of the lakes—are we not a civilized people, and have we not a right to these luxuries whether we can pay for them or not? Is it not as useful to the country to turn out men educated as engineers, architects, mechanics, miners and farmers as to turn out lawyers, doctors, ministers and bankers? Will not the graduates of our technical schools have that very education which our mechanics, artisans and tradesmen of all classes most desire, and of the necessity for which they are reminded every hour? If you had seen with me the crowd of eager men, young and old, who assembled the other evening at the opening of the Toronto Technical School, you would no longer have any doubt as to the desirability and necessity of technical education. If the country cannot support such men, so much the worse for the country, and so much the better for that country in which they find employment.

If we are ever to pay off our foreign debt and trade on equal terms with other nations, we must develop our material resources with economy and skill, and among the means making towards this end not the least promising is technical education.

The late John Scott Russell, F. R. S. (England), in a work entitled "Systematic Technical Education for the English People," (1869), expresses his views on the subject in its bearing on the education of engineers—and his remarks are equally applicable in principle in every other trade or calling of an artisan character—in the following words :

"I will now come to the practical matters which show directly the results of a technical education in the production of one of its chief objects—the creation of wealth. It is notorious that those foreign railways which have been made by themselves in the educated countries of Germany and Switzerland have been made far cheaper than those constructed by us in England. It is known that they have been made by pupils of the industrial schools and technical colleges of these countries, and I know many of their distinguished men who take pride in saying that they owe their positions entirely to their

technical schools. I find everywhere throughout their works marks of the method, order symmetry and absence of waste which arise from plans well thought out, the judicious application of principles, conscientious parsimony, and a high feeling of professional responsibility. In the accurate cutting of their slopes and embankments, in the careful design and thoughtful execution of their beautiful but economical stone masonry, in the self-denying economy of their large span bridges, the experienced traveller can read as he travels the work of a superiorly educated class of men; and when we come down to details, to the construction of permanent way, arrangements of signals, points, and sidings, and the endless details of stations, we everywhere feel that we are in the hands of men who have spared no pains, and who have applied high professional skill to minute details. It is well known that many years before we would follow their example, the engineers of the German railways had introduced a system of constructing and of uniting to each other the iron rails of the permanent way, which made them cheaper, more durable and safe than those employed in England. Happily for our national reputation it was an Irishman who invented it, though its advantages had first to be appreciated in Germany before we would follow the example. It is remarked by every traveller that the works of their railway stations are, when compared with ours, much more beautiful, convenient and fit, both within and without; the construction of their trains, the proportions of their carriages, the fitness, convenience and comfort of their internal arrangements, all tell to the disadvantage of ours, and the one thing in which our railways excel theirs is in high speed. Theirs, on the other hand, are economical in capital and high in revenue. . . .

"From the days of James Watt and Arkwright until now, comprehending the whole of the present century, the mechanical engineer or machinist has formed one of the most important classes of this country and has conferred on it immeasurable benefit. It was the mechanical engineer and the manufacturer who, together, during the early part of the present century, while the whole of Europe was overrun by the curse of war, created wealth in this country so rapidly as to enable her to struggle through a burden of expenditure to which there has been no parallel, and to come out of it prosperous and wealthy.

"There are no occupations or trades concerning which there could be so little difference of opinion as to the practical importance of special technical education, as this class of mechanical engineer and machinist. Philosophers have defined man as the tool-using animal; but if the man of this century were defined, the 'engine-maker' and 'machine-user' would be his leading characteristic. It is the triumph of human nature in our time, that it has achieved the understanding of the forces of nature so completely that whatever material service we wish to perform we can always discover some elemental force in nature willing to lend us its aid to conquer our difficulty, provided we will study its nature sufficiently to direct it into the way in which it can best serve our end. The steam hammer of Nasmyth and the steel ingots of Krupp are symbols of the powerful yet plastic forms man yields in his gigantic shape-compelling processes of manufacture. We may sum up the duties of a man of this craft by saying that there is scarcely a process now performed by animal or man which our engineers or machinists of the next generation may not be called upon to perform better and quicker by machines of their own creation."

Mr. Thomas Hawksley, in his presidential address before the Institute of Civil Engineers (England), on January 9, 1872, took occasion to impress the two hundred students before him with some cogent thoughts as to "that peculiar knowledge by which they are severally known and distinguished." Advising these students in technical knowledge, he said: "Of all things, don't attempt too much. Keep up and augment your knowledge of mathematics and the applied sciences, especially of those sciences which are most needed in that walk of the profession which you have selected for your own path; but again, I say, do not attempt too high a flight, for if you do you will never become a practical man. . . . Learn the uses and application of tools; make yourselves able to distinguish a good material from a bad material, good workmanship from bad workmanship, sound ground from treacherous ground, good puddle from bad puddle, good mortar from bad mortar, and a good workman from a bad workman. . . . Practice as much as possible the art of mental computation, for this will give you the

means of almost intuitively arriving at determinations on questions of cost, and of at once seizing on the best of several alternative plans or methods. Be not afraid of soiling your hands or dirtying your boots, but be in every other respect—in thought, feeling and conduct—a gentleman."

Hon. J. S. Ewing, United States Minister in Belgium, in a Consular Report dated "Brussels, June 4, 1894," on the question of "Labor Laws of Belgium," enumerates *insufficiency of technical knowledge* as one of the principal causes assigned for the misery to which quite a number of working people in that country are unavoidably subjected under existing circumstances.

Trades and Labor Congress of Canada on Technical Education.

While the Ontario School of Practical Science, established in 1877, was fulfilling its mission and extending its means of education, yet a void existed which required attention. With the object of securing what was required in the interest of that class of the community least able to avail itself of the advantages offering in the higher educational institutions of the country, the organized labor elements throughout Canada, with a practical knowledge of what was wanting and requisite, began an agitation and placed themselves on record in respect thereof in due season.

At the third annual session of the Trades and Labor Congress of the Dominion of Canada, held in the city of Hamilton, Ont., on September 27, 28 and 29, 1887,

D. J. O'Donoghue moved, seconded by W. H. Parr,

"That in every province in which there is a state-supported and state-controlled system of public education, provision should be made by the state for industrial training, not merely in connection with primary and secondary schools, but also and more especially by the establishment and maintenance of institutions adapted to the instruction of youths in agriculture and the mechanical arts."

Wm. McAndrew was afraid that such education would result in overstocking the labor market. There were already too many mechanics for the requirements of the various trades.

A. F. Jury said he believed in the system adopted at the South Kensington schools of teaching the sciences applicable to various trades.

D. J. O'Donoghue, replying to Mr. McAndrew, said that the Congress could not prevent the manufacture of mechanics, but it could at least see to it that the mechanics who competed in the labor market of Canada were competent men. One of the great difficulties they now had to contend with was the flooding of that market with incompetent men, who went to work at low wages.

A. F. Jury moved in amendment, seconded by G. W. Dower,

"That the Parliamentary Committee be instructed to use its influence with the Ontario Government to induce them to establish science classes for the teaching of these branches of science, a knowledge of which is necessary in order to carry on the various industries of the Province"

The amendment prevailed.

At the annual session of the same organization held the next year (1888) in Hamilton, Ont.,

R. Glockling moved, seconded by A. Macdonald,

"That the system of manual training in our schools, as proposed by the Hon. the Minister of Education for Ontario, is prejudicial to the interests and welfare of mechanics generally, and that this Congress do petition the Ontario Government to abandon the same."

In support of his motion, the mover explained that his objection to the proposed scheme was based on the fear that its adoption would lead to the teaching of the primary

rudiments of the various trades to pupils to an extent that would render them available to take any situations rendered vacant through strikes or other causes, to the detriment of mechanics who had served a regular apprenticeship.

A. W. WRIGHT feared that the motion as it stood would lead to the impression that the Congress was opposed to technical education, while the very reverse was the case, and he moved in amendment, seconded by JOHN ARMSTRONG, that

"After the word 'that' where it first appears, the following be inserted: 'This Congress, while favoring a judicious system of technical education, considers that'"

H. T. BENSON favored technical education in schools, taking the ground that it would benefit the children of laboring men, and would give their parents some idea of what they were best adapted to.

R. GLOCKLING said he was prepared to accept the amendment as part of the main motion, and after some further favorable discussion it was so adopted.

Again, when the Dominion Trades and Labor Congress met at its fifth session in the City of Montreal, Quebec, in September, 1889, technical education once again engaged the attention of the organization. On that occasion

R. GLOCKLING moved, seconded by D. J O'DONOGHUE,

"That this Congress, while favoring a judicious system of technical education, considers that a system of manual training in our schools, such as proposed by the Minister of Education for Ontario, would be prejudicial to the interest and welfare of mechanics and wage-earners generally."

Mr. O'DONOGHUE said this was a most interesting and important question, and he would like every member to understand it. They must not confuse technical education with manual training. What they were opposing in Ontario was manual training in the Public School—or rather a threatened introduction thereof into these schools. The Minister of Education had told them in an interview that the Government had to provide such a system because too many were going into the learned professions. There was the whole secret. The profession of law had a strong union, and so had the medical profession, and they were well protected. These professions now wished to provide machinery to keep off the pressure on their respective professions, and to that extent at least keep their labor market from being flooded.

Wm. DARLINGTON moved in amendment, seconded by U. LAFONTAINE,

"That this Congress, while favoring a judicious system of technical education, consider that a system of manual training in our Public Schools would be in the best interest of the laboring classes."

Mr. DARLINGTON advocated a broad view of the question. He claimed that manual training and education in schools would tend to the benefit of the working classes, and he believed they should work hand to hand with those who wished to provide it.

Mr. GLOCKLING said it would be utterly impossible for the schools to take in all the trades. He claimed that they had a right to look ahead in order to prevent trouble. It had been one of the faults of labor organizations that they had been too careless. They should surround their callings with as much protection as possible. It was an old story that wherever the workingmen were concerned there had been no protection at all.

Mr. LAFONTAINE warmly advocated manual training in schools.

Mr. LEPINE, M.P., advocated technical schools, and stated that petitions had been presented to the Provincial and Municipal authorities asking that technical schools should be established in Montreal. Nearly all countries had recognized the utility of technical education, and Canada should not be behind them in that respect.

On a vote being taken the amendment was lost and the main motion was declared carried on the same division.

TORONTO EVENING TECHNICAL SCHOOL.

To the City of Toronto is due the honor of being the first in the Dominion of Canada to establish and provide for the maintenance of an *Evening Free Technical School* "for the purpose of imparting practical scientific instruction to the artisan and working classes of the city." In view of this important circumstance, and as other schools of like character—elaborated, perhaps, by Federal or Provincial institutions—with day and evening classes, may be developed throughout the land, and as an historical record, it is deemed judicious to indicate with succinct detail the proceedings of the City Council antecedent to and at the time when the by-law establishing the school became a legal enactment.

Toronto City Council Proceedings.

At the regular meeting of the City Council, of the City of Toronto, held on the 18th February, 1889:

Ald. McMillan moved, seconded by Ald. Tait, "That a Special Committee, consisting of Alds. Ritchie, Hill, Fleming, St. Leger, Small, and the mover and seconder of this resolution, be appointed to take into consideration the advisability of establishing free evening classes during the winter months, for the purpose of imparting practical scientific instruction to the artisan and working classes of the city, and that the 33rd and 35th Rules of this Council be dispensed with so far as they relate to this motion."—Carried.

At the meeting of the City Council on the evening of July 8, 1889, Report No. 29 of the Executive Committee was submitted for consideration, and contained with others:

Report No. 1 of the Special Committee.

Appointed to take into consideration the advisability of establishing free evening classes during the winter months for the purpose of imparting practical scientific instruction to the artisan and working classes of the city:

At the suggestion of the Chairman and the request of the Committee a circular was prepared and copies sent to all persons likely to take an interest in the proposition (in all about one hundred and fifty being sent out), and replies favorable thereto have been received from the following, viz.:

Mr. John Perkins, Toronto Engine Works; Prof. J. Galbraith, School of Practical Science; Messrs. R. & T. Watson, Wholesale Manufacturing Confectioners; Mr. F. W. Babington, School of Practical Science; Mr. A. R. Williams, Machine Manufacturer; Mr. J. Galt, C. E., Mechanical and Hydraulic Engineer; Mr. A. M. Wickens, Engineer Globe Office; Dr. S. P. May, Superintendent Educational Department; Sir Daniel Wilson, Chairman of the Board of School of Practical Science; Mr. D. J. O'Donoghue, Bellevue Place; Mr. J. W. Lainson, Secretary Executive Board, K. of L.; Mr. S. S. Malcolmson, President Canadian Marine Engineers' Association; Mr. Charles March, 280 Richmond street west; Mr. W. J. Burroughs, Plumber; Mr. Robert Health, of R. Dinnis & Son.

After a careful perusal of the answers received from the foregoing gentlemen we find that in every instance they most heartily endorse the proposition, and in no case has there been any opposition to the scheme. Some of the answers received contain most valuable suggestions as to the manner of conducting these classes and making them of practical benefit.

Under those circumstances, and in view of the fact that the Honorable, the Minister of Education caused an amendment to be made to the Free Libraries Act at the last session of the Legislature empowering the Free Library Board to institute and manage such classes, giving them all the powers necessary, and whereas the sum of two thousand dollars has been placed in the estimates to the credit of the Board to be used for the purpose of establishing free evening classes for the purpose of imparting practical scientific instruction to the artisan and working classes of the city during the winter months, your Committee would recommend that the Chairman of the Committee have authority to introduce a resolution at the next meeting of the City Council calling on the Free Library Board to carry out the wishes of the Council in this respect.

Respectfully submitted,

JOHN MCMILLAN,
Chairman.

COMMITTEE ROOM,
Toronto, July 5th, 1889.

The report of the Special Committee having been concurred in

Ald. RITCHIE, seconded by Ald. HILL, moved,— that "whereas the Council this evening has by adopting a report of a Special Committee appointed to consider the matter approved of the proposal to establish evening classes for artisans, mechanics and working men, in such subjects as may promote a knowledge of mechanical arts; and whereas the sum of $2,000 has been appropriated and set apart exclusively for that purpose; and whereas the Local Legislature, at its last session, passed an Act* placing the government and control of such classes under the control of the Free Library Board; be it resolved, therefore, that the Free Library Board be and is hereby requested and called upon to carry out the wishes of the Council in respect of establishing such classes, as above mentioned, during the winter months, and that the 33rd and 35th Rules of this Council be dispensed with so far as they relate to this motion," which was carried.

At a regular meeting of the Public Library Board held on the 12th July, 1889, a letter from the City Clerk was read, and was as follows:

TORONTO, July 9th, 1889.

Secretary Public Library, Toronto:

SIR,—I beg to forward you a copy of Report No. 1 of the Special Committee "appointed to take into consideration the advisability of establishing free evening schools during the winter months for the purpose of imparting practical scientific instruction to the artisan and working classes of the city;" also a copy of a resolution with reference thereto, as adopted by the Council of the Corporation of the City of Toronto at its meeting held on the 8th instant.

JOHN BLEVINS,
City Clerk.

Resolved that the communication from the City Clerk be referred to the Library Committee for their consideration and report.

At a regular meeting of the Public Library Board on October 8th, 1889, the chairman presented his report upon the question of establishing and maintaining Technical Schools for the benefit of the artisan classes in Toronto, as follows:

REPORT OF HIS HONOR JUDGE MCDOUGALL.

GENTLEMEN,—Being requested by the Library Committee to look into the subject of Art and Science Schools for artisans, with the view that the Library Board should un-

*Hon. G. W. Ross, Minister of Education, immediately after the initiatory resolution by Ald. McMillan, introduced and had passed into law at the then sitting session of the Provincial Legislature, March, 1889, an Act to amend the Free Libraries Act by adding to subsection 2 of Section 2 thereof the following words: "There may also be established evening classes for artisans, mechanics and workmen, in such subjects as may promote a knowledge of the mechanical and manufacturing arts," and the powers of the Board were declared to apply to the evening classes established under this act.

dertake the establishment and maintenance of such schools, I have, within the past three months, given much consideration to this question. I have had interviews with prominent citizens and gentlemen experienced in teaching the subjects which would be likely to be taught in such schools, to inform myself and to arrive at some practical conclusions how best to deal with this important and somewhat difficult subject. Amongst others with whom I have consulted are the Minister of Education; Dr. J. E. White, President of the Board of Management of the existing Art School; Prof. Galbraith, of the School of Practical Science; John Galt, C. E., a gentleman who has had much practical experience in similar schools in Scotland; and several other prominent citizens. The result of these consultations has led me to the conclusion that it would be wise, if it is decided that the Free Library Board should deal with this question, to avail themselves as far as possible of the existing teaching staff, with the object of forming the nucleus of a more complete and extensive system of schools dealing with a wider range of subjects.

The question of settling the curriculum or syllabus of subjects to be taught, the number of teachers to be employed and the number of schools to be opened, even with such information as I have secured, I do not feel qualified to deal with.

I think the first thing to do, if the Library Board decides to enter upon the responsible duties of dealing with these schools, will be to select and appoint a suitable Principal to manage the schools; and if a man of experience and practical ability is secured, it would be properly his duty to block out a scheme in all its details, and submit the same to the Board for approval and adoption. It will probably be found that in an attempt to combine science teaching with art subjects, that no one man will sufficiently possess the qualifications in both branches to make a satisfactory division of subjects and give due prominence to each, and that there may have to be a double head—an Art Principal and a Science Principal—to enable the Board to fairly apportion the share which Science and Art respectively shall monopolize in the new curriculum; but I would nevertheless suggest that the schools should be under the control of one head only, and that either the Science or the Art Principle should be in charge and solely responsible for the proper conduct of the schools, and the position of his colleague should be that of a deputy head, responsible for his department to the Principal.

It has been suggested that four or five of these schools should be opened in different parts of the city—one of which should be in a central position, equipped on a large scale, and should occupy the position of the parent school, with the others as branches.

It is also suggested that the schools should be open five evenings in the week, for at least two hours each night, and possibly that afternoon classes should be conducted in the Central School, and the course of instruction should extend from, say, the 1st of October to the 1st of May or June following, in each academic year.

That a small fee should be charged to students—say, five cents per night—and that an annual examination should be held to test the progress of the students and award school prizes and certificates. This to be in addition to the Governmental annual Art examination.

It is estimated that the annual cost of maintaining the number of schools above mentioned, suitably equipped with an efficient teaching staff, would be between $6,000 and $6,500 a year. It is hoped that the Government grant may be increased to about $1,500, fees from pupils say from $1,000 to $1,500; the balance to be provided by the city.

The above amount, judiciously expended, would, I am confident, establish technical schools on a satisfactory basis, and provide for our artisan classes efficient schools for their education in both the elementary and advanced stages of art and practical and technical science.

I would therefore suggest that if it is desired to take up this work this fall, a gentleman qualified for the position of principal should be at once selected. He should be instructed to visit and inspect the existing art schools, procure from them a full inventory of their present property, assets and school equipments, the names and terms of engagements of present teachers, with a list of the subjects they teach, full statistics of the pupil attendance during the past two years, the amount of receipts from fees and other sources, and the expenditure that has been made for their maintenance for the same

period. With these data he should prepare a report for the information of the Board, which should formulate a scheme for the establishment, extension and maintenance of schools for the future, with an estimate of the annual cost of the same. The arrangement with any such gentleman should be upon the understanding that if, after his report, the Library Board should not approve of or adopt the same, and should decide not to establish technical schools, he should be paid a reasonable sum, to be agreed upon beforehand, for loss of time and labor in preparing his report.

If this is done, the Board will obtain a practical idea of what is before them, and will be able to decide intelligently the extent of the responsibility to be assumed by them. They will likewise be able to inform the City Council as to the amount of money required from them annually to carry on successfully the schools which that body has requested them to undertake the establishment and management of.

I append for the information of the Board, a suggested syllabus of subjects for the elementary and advanced classes, but I do not feel competent to criticise the same or suggest additional modifications ; it will, perhaps, give the Board some idea of the wide range of subjects which may be and which perhaps ought to be, embraced in any well-considered scheme for the establishment of these technical and art schools for the artisan classes.

JOSEPH MCDOUGALL.

Syllabus of Subjects of Industrial College of Science and Art.

Art Department—Elementary and Advanced Stages :

1. Freehand Drawing.
2. Model Drawing.
3. Object from memory.
4. Outline.
5. Shading.
6. Design.
7. Painting.
8. Model.
9. Drawing from life, etc., etc.

Science Section—Elementary and Advanced Stages :

1. Geometry.
2. Perspective.
3. Building Construction and Architectural Drawing.
4. Machine Construction and Drawing.
5. Mathematics—including Arithmetic, Algebra, Euclid, etc.
6. Mechanics.
7. Physics.
8. Chemistry.
9. Physiology.
10. Geology, etc., etc.

On motion the report of Judge McDougall was received and adopted, and, in accordance with a suggesti n therein, Mr. John Galt, C.E., was appointed to make the report specified, at an expense not to exceed $100.

At the regular meeting of the Library Board, held on November 8, 1889, deputations consisting of Dr. White, Mr. Carlaw and Mr. John Inglis, from the Art Schools ; Messrs. Revell and Gagen, from the Ontario Society of Artists, and Mr. D. J. O'Donoghue, from Toronto Trades and Labor Council, were introduced, and addressed the Board on the subject of the proposed establishment of Technical and Art Schools.

Report of John Galt, Esq., C.E.

To the Chairman and Members of the Free Library Board, Toronto:

Gentlemen,—In accordance with your request, as per letter dated the 19th inst., I beg respectfully to submit the following on the subject of Industrial Science and Art Education:

That there is great need and urgent demand for the immediate establishment in our midst of a well equipped institution for the special purpose of providing an efficient system of practical and technical education few will deny.

The pressure of necessity has been slowly forcing it upon the public in order that the continued prosperity of our manufacturing interests may be maintained and their further development assisted.

In order to best meet these demands, I would advise having an Industrial College Building, centrally situated, with not less than six rooms, well lighted, heated, and ventilated, each room to have at least 800 square feet of floor space, or say rooms of about 25 x 35 feet; three or four of the rooms to have daylight from the north.

Branch schools should form an important part of the work, and be established only when and where necessity existed.

The Industrial College should be one in management and control, under one Board and one Principal, but the teaching divided into two and separate departments, viz.:

1. An Industrial Science Department.
2. Machine Construction and Drawing.

The subjects requiring to be taught at first would be as follows:

Science Department.

1. Geometrical and Perspective Drawing.
2. Machine Construction and Drawing.
3. Building, Construction and Architectural Drawing.
4. Mathematics—including Algebra, Euclid and Plane Geometry.
5. Mechanics—embracing Steam and Electrical Engineering, with the Natural Philosophy subjects.
6. Inorganic Chemistry.

Art Department.

1. Freehand Drawing from flat copies, models, or objects from memory.
2. Outline Drawing and Shading.
3. Ornamental and Industrial Design.

Branch Schools.

Provision should be made at first for teaching Science subjects 1, 2 and 3, and all the Art subjects specified, requiring two teachers.

Other subjects can be added when actually required.

The Syllabus outlined includes subjects most needed and in demand bearing in an industrial direction. Other subjects might be added in time, but care should be taken not to hamper the general good by introducing subjects which may be very important to a few but absolutely of no importance to the many.

All the Science subjects, together with the Art subjects, should be taught during the evening, and only the Art subjects with Science subject 1 be taught during the day.

The classes should be held during four days in the week, viz: Mondays, Tuesdays, Thursdays and Fridays, thus giving an off day in the middle of the week, which would be of the greatest value both to teachers and taught alike. It is not intended, however, that the school building should be closed on the Wednesday; pupils would be at liberty to frequent the rooms, on obtaining permission, for purposes of special study and preparation.

The class hours during the day should be from two till four in the afternoon, and in the evening from half-past seven until half-past nine o'clock.

The session should begin about the 1st of October in each year, and extend to the middle or end of April, when governmental and special examinations would take place.

The fees should be graded according to subjects and conditions—the day fees being moderate, while in the evening the charge should be as low as possible, being nominally free.

The teaching staff required to do justice to the courses outlined in a central institution, after being established and in operation, should consist of a principal or superintending teacher, with a chief assistant over the Art department; also three assistants in the Science, and one additional in the Art department, making in all six.

Some of these teachers would require to teach both in the daytime and evening, while others would teach only during the day or evening, as the case may be. In order to make teachers interested in their work, with prospects of advancement, the remuneration for the entire session's work should be not less than, and be about as follows :

Principal	$900
Chief Assistant in Art department	600
1st Science Assistant	400
2nd "	300
3rd "	200
2nd Art Assistant	400
Total	$2,800

Teachers' salaries for Branch Schools would be as follows :

Chief Teacher	$500
Assistant	300
Total for each Branch School	$800

The teaching should conform as much as possible to Government requirements, so as to secure as large grants and monetary aid as possible, and provision made for granting scholarships to the most deserving and meritorious students, to assist continuing their studies at the Universities and other places, thus making the Industrial College a stepping stone to the highest ranks of learning.

Nothing whatever should be done in the direction of practical manual training for any business, trade or profession, but merely place within easy reach of all a full elementary knowledge of the elements and rudimentary principles of Industrial Science and Art subjects. This will tend to preserve and secure a skillful and intelligent artisan class, and assist the most talented and aspiring to improve not only their own conditions and chances, but that of their fellow men.

The arrangement thus briefly sketched out would practically and substantially be providing for an Artisan and Workingman's Technical School in the evening, while during the day it would be chiefly utilized for Industrial Art work, thus combining in a harmonious whole all the interests concerned in the establishment of an institution suited for the various branches of industrial education, which, if carried out, would place the City of Toronto on a footing equal, if not superior, to any large city on the continent at a small annual expenditure of money, out of all proportion to the great benefit to be derived.

The establishing of such an institution on a really permanent and satisfactory basis will take time and require careful consideration and experienced management. The time has, however, more than arrived when a liberal effort should be made for providing special means for conducting this important branch of education.

The proposed syllabus of subjects outlines a field of work which is really intermediate to common school education and university work. If, then, large sums are spent annually on such work, surely it is not unreasonable to look for a fair share of support when so large and important a class of the community is to be directly benefited, not to speak of all the direct and indirect advantages which would accrue to the manufacturing interests of the country.

A very large majority of pupils, after leaving the public schools to follow industrial pursuits, are left entirely to themselves in acquiring knowledge suited to their business, because at present little or no provision is made for placing within their reach a kind of education specially suited for their particular trade or calling. It is therefore most important and fundamental to any complete system of education that this missing link be supplied.

The proper time to begin all this work, as outlined in this report, would be in the fall of 1890, because it will be impossible to secure suitable rooms, equip same and arrange the necessary details for teaching before that date. I would, however, strongly advise making a start, if possible, before that date and arranging at once to teach only Science subjects 4, 5 and 6, by securing suitable rooms and opening after the Christmas holidays, or sooner if possible.

The above arrangement would not infringe on the work of the present Art Schools, which by Christmas would be about half over for the season, and would not interfere in the slightest degree with their present arrangements. On the other hand, it would give ample time for the proper consideration of the whole question before the session of 1890-91.

I have not been able to obtain the official information specified in your letter to me on the 16th inst., *re* Art schools, but having visited the Central Art School and having gleaned many facts from Government and other reports, together with my own knowledge of affairs, I can assure your Board that the following represents very closely the actual status of the present Art Schools in the city :

1.	Assets, chiefly composed of material, school fittings and equipment, about	$500
2.	Liabilities about	600
3.	General average, total municipal receipts (for past two years)	1,700
4.	General annual expenditure	1,700
5.	Average pupil attendance at all schools, about 130	
6.	Number of teachers in all schools 3	
7.	Teachers' salaries amount to about two-thirds of expenditure.	
8.	Fees from pupils amount to fully one-half of total receipts.	
9.	Government grants amount to about one-half of total receipts.	

It would be a manifest advantage to the present Art Schools if an arrangement can be made so as to re-arrange their syllabus in an industrial direction and graft them into the Art Department of the proposed Industrial and Technical Schools.

In conclusion I would say that if a Central institution, with say two branches, were to be fully provided for, a sum of $2,000 would cover the cost of all the necessary equipment to begin with, which, together with $1,200 for rent and $1,400 for teachers' salaries and other expenses, amounts to a total expense of $7,600 for the first complete year, after which the above total could easily be reduced to about $6,000, which would practically be the annual expenditure to be provided for.

If, on the other hand, it should be decided to open classes at once in Science subjects 4, 5 and 6, as already suggested as an alternative plan, the equipment required would cost about $600, which, together with say $300 rent and $1,000 for teaching, would make a total expenditure of $1,900.

I may further add that the following statement would approximately represent the financial aspect of both the above plans :

1st Plan representing one Central Institution and the Branch Schools for One Year.

Receipts.		*Expenditure.*	
City Grant	$5,600	First Year's Equipment	$2,000
Government Grant	1,000	Teachers' Salaries	4,400
Fees	1,000	Rent, etc	1,200
	$7,600		$7,600

2ND PLAN.—PRELIMINARY OPENING.

Receipts.		*Expenditure.*	
City Grant	$2,000	Equipments	$ 600
Fees	200	Teachers' Salaries	1,000
		Rent, etc	300
	$2,200	Balance	300
			$2,200

After the opening or first complete year's work the annual receipts and expenditure should be about as follows for central and two branch institutions :

Receipts.		*Expenditure.*	
City Grant	$4,000	Teachers' Salaries	$4,400
Government Grant	1,000	Rent, etc	1,200
Fees	1,000	Equipment	400
	$6,000		$6,000

Faithfully yours,

Toronto, October 30th, 1889. JOHN GALT.

On motion the Report was received and left over for consideration at the next meeting.

On another motion it was

"Resolved, that, in view of the importance of the subject of Technical and Art Schools which it is proposed to establish under the control of the Public Library Board, a Committee of this Board, consisting of the Chairman of the Board, Chairman of the Library Committee and Dr. Pyne, proceed to the United States to examine the working of such schools and report the result to this Board."

At a regular meeting of the Public Library Board held on the 20th December, 1889, the Committee appointed to visit the Schools of Science and Art in the United States, submitted a report, as follows :

"Your Committee visited as many schools devoted to Art and Technical Instruction as the limited time at their disposal permitted. The following is a list of the institutions inspected :

1. Massachusetts Institute of Technology ..... Boston.
2. School of Manual Art ..... "
3. Cooper Institute ..... New York.
4. Young Men's Evening Art Schools ..... "
5. Pratt Institute ..... Brooklyn.
6. Girard College ..... Philadelphia.
7. Washington School of Science ..... Washington.

"In all these institutions, with the exception of the Young Men's Christian Association Night Schools, we found that large workshops and costly laboratories were used in connection with their system of instruction, and the work in these formed the most important element of the training imparted.

"We found the scope and extent of the instructions given far beyond what we consider to be the requirements in Toronto, at any rate for the present ; and certainly the cost of either establishing or maintaining any school on the same magnificent scale would demand an expenditure that could not be dreamt of for years to come, even in our progressive city. Private generosity and philanthrophy may one day furnish the capital to

establish a modest school having many of the admirable and highly desirable features to be found in these institutions, but for the present any scheme to be adopted must be simple and unpretentious indeed, compared with these wonderful creations of our enterprising neighbors.

"The apparent object of their system is to turn out thoroughly technically educated first-class mechanics. The object to be kept in view in our proposed schools must, we think, be either to teach mechanics theoretically, and not so much their actual application by any system of manual training.

"The methods pursued in the American institutions appeared to us almost perfect, when the object aimed at by them is taken into account, but naturally to accomplish results on their plan demands an expenditure that is startling.

"These institutions are practically Universities, with a fully equipped staff of Professors, Lecturers, Practical Foremen and skilled Mechanical Instructors. They are fitted up with the most perfect and expensive apparatus and machinery, and it is almost like visiting a factory to enter their practical departments.

"Our School of Practical Science, with the extensive additions that are being made, will be more nearly allied to most of these institutions than anything we can hope to see in Toronto.

"Before putting before you any definite conclusions as to the result of our inspection, we desire to say that we are filled with a great many doubts as to the policy of the Free Library Board undertaking the responsible duties of managing these proposed schools or classes. This question ought to be settled at the threshold in the interest of the schools themselves. In each and all of the institutions visited we found that special Boards of Management controlled each school. These Boards were composed of citizens selected for their peculiar fitness or qualifications for dealing with the special work undertaken. In no case did we find the Boards of Free Libraries associated with the management.

"It may well be questioned if it is a wise movement on the part of the Library Board to divide the time and attention which should be properly devoted to library matters by undertaking new duties and responsibilities in an entirely different field.

"The manner in which the Library Board is appointed, does not, we venture to suggest, insure the presence on our Board of any considerable number of gentlemen who could fairly claim special aptitude for managing Technical and Art Schools.

"We think that the Board of Management of these schools should be a distinct and separate body from the Free Library Board, and so constituted as to be a representative board of citizens, who, from their education, tastes, or other special qualifications, would be more likely to make the enterprise a success.

"Your Committee, after much reflection and anxious consideration, and largely as a result of their inspection of existing prosperous schools, having the same objects in view as those we are seeking to attain by establishing Technical and Art Schools here, have arrived at the conclusion that it would not be wise or advisable in the interests of the Free Library, or of the proposed schools themselves, to undertake their management.

"If needed, a special Act could be procured at the ensuing meeting of the Provincial Legislature, providing the necessary legal machinery for establishing Technical and Art Schools, and providing for their management. The giving of municipal aid towards their support could be authorized."

JOSEPH E. McDOUGALL,
December 17th, 1889. Chairman.

On motion the foregoing report was received, and it was resolved that the same be amended by the addition of the following clause:

"This Committee, whilst of opinion that Technical Schools could not be well instituted and managed by the Board of the Public Library, are strongly of opinion that such schools should be established in the City of Toronto."

(Copy of Letter to the City Clerk.)

TORONTO, December, 21, 1889.

DEAR SIR,—I beg to forward you the enclosed copy of a resolution adopted by our Board of Management at their meeting yesterday, relative to the proposed establishment of Technical Schools, as set forth in your communication of the 9th July last.

JOHN DAVEY.

At a meeting of the City Council held on December 23, 1889, among the communications read was that from the Secretary of the Public Library Board to the City Clerk, enclosing copy of a report of the Special Committee of the Board appointed to consider the question of establishing Industrial Schools in Toronto.

Ald. BELL, seconded by Ald. BAILEY, at a meeting of the City Council on February 17th, 1890, moved that the Legislative Committee be requested to take into consideration the advisability of asking for such legislative amendments as may be requisite to place the work of establishing public schools for imparting scientific instruction to the working classes of the City of Toronto under the Public School Board, which was carried.

At the City Council meeting held on March 3, 1890, a communication was read from Mr. A. M. Wickens, President of the Canadian Association of Stationary Engineers, protesting against the grant made last year for the purpose of establishing schools for imparting scientific education to the working classes being diverted from the purposes for which it was originally intended.

On July 14, 1890, the Executive Committee submitted Report No. 19 at a meeting of the City Council, and was as follows, in so far as it referred to:

TORONTO TECHNICAL SCHOOLS.

"Your Committee have considered the following report of a Sub-Committee on Technical Education, of which Ald. Gillespie was Chairman, and approve of the scheme, with a recommendation that the schools be called "The Toronto Technical Schools." Your Committee consider it inadvisable to establish more than three schools at present, leaving the location of the same to be fixed by the new Board. With this exception the report is submitted for adoption by the Council.

TECHNICAL EDUCATION.

"Your Committee, having carefully considered the subject of the establishment of technical classes for artisans, respectfully submit the following report and recommendations:

"Your Committee, after due enquiry into the industrial needs of this city, are convinced that classes at which artisans can be taught the scientific principles and laws which underlie the handicrafts and industries in which they are engaged, at which lessons can be given in the useful arts, and by which solid information and teaching can be disseminated among the masses of our workers, are very urgently required.

NECESSITY OF SUCH CLASSES.

"Not only is Toronto behind other cities of equal size in this respect, but we have reason to suppose that our industrial progress will suffer in the future unless provision be made whereby our workers may become as intelligent and well informed as those of other cities.

"The difference between a scientifically educated workman and one who is totally ignorant of science is as great as that which divides a blind man from one who can see. The one goes about his work in a "rule-of-thumb" manner, having, it is true, the teaching of experience as to the various phenomena he comes across in the course of his trade, but knowing nothing of the theory which weaves those phenomena into a complete system, and which will enable him to make fresh progress. Enquiries are being made from time to time in different directions by operatives engaged in our building, manufacturing and mercantile industries who would be exceedingly glad to avail themselves of such courses of instruction as are indicated in the following report. Your Committee are therefore of opinion that the classes would be attended by large numbers of this class of people.

Example of other Cities.

"This is no untried field of labor. There are plenty of examples to learn from both on this continent and in Europe, all of them showing that if we are to keep our position in these competitive days, we must educate our artisan population. In this work, assistance and useful information may be obtained from the published reports of hundreds of successful institutions of exactly the kind contemplated which are now in beneficent operation. Your Committee have informed themselves as to the working of these organizations and find that there is a mass of actual experience to draw upon which will greatly assist in the prosecution of the work.

Scheme of Operation.

"Your Committee recommend that this work shall be undertaken under the supervision of a Board to be appointed by the City Council in the same way as the High School Board is appointed, to be called 'The Workmen's Technical Education Board.'

"This Board should consist of fifteen suitable persons, five to be a quorum, and should include three representatives from the City Council, in addition to the Mayor and the Chairman of the Executive, who would be ex-officio members. It should also include prominent manufacturers and other employers of labor, educationists, and a fair representation of the working classes.

"Ladies should be admissible as members of the Board.

"The necessity for a properly constituted, recognized and distinct organization of this kind is admitted by those who have studied this question, and is proved by the fact that the Public Library Board, although permitted to establish such classes, has declined to undertake them, alleging that they were beyond the scope of their duties, and that they did not consider they were competent to carry them out. Here, it may be well to remark, that an offer was made by the managers of the existing Government Art Schools to make over these organizations to the Public Library Board in the event of that Board undertaking the work of the technical education of workmen.

"If a similar offer were made to the proposed Technical Education Board it would be their duty to consider the matter, and, if found desirable, to absorb and remodel them in accordance with this proposed plan.

Officers of the Board.

"The officers of the Workmen's Technical Education Board should be a Chairman, Vice-Chairman, and paid Secretary. The Secretary would have important and executive duties to perform in the conduct of the classes, and he should be thoroughly conversant with educational work of the kind contemplated.

Duties of the Board.

"The duties of the Workmen's Technical Education Board should be to institute evening classes and lectures in such parts of the city as may be found desirable and convenient for the instruction of operatives in science and the useful arts, to control the working and expenditure of such classes and lectures within the amount of money set apart for the purpose, and to appoint such officers, teachers and lecturers as may from time to time be required.

Number and Location of Classes.

"Your Committee recommend that four classes be started on the 1st of October next—one in the centre of the city, one in or near Parkdale, one in St. Matthew's Ward, and one in St. Paul's Ward.

"These would probably be convenient for the main bulk of the artisan population for the present, and the field of operation might be enlarged as occasion requires.

Subjects to be Taught.

"One of the first duties of the Workmen's Technical Education Board will be to determine upon its curriculum.

"The classes should be open every night in the week for the study of such subjects as would make those attending them better able to fulfil their daily duties.

"It is not supposed that any pupil attending the classes would join in all of the subjects taught. Probably one or two would be as much as most of those attending would find leisure to undertake thoroughly.

"A perusal of the lists of subjects of similar institutions has led your Committee to recommend the following as a suitable list from which to make selections:

1. Mathematics (Arithmetic, Algebra, Geometry, etc.).
2. Physics (Heat, Light, Electricity, Statics, Dynamics, etc.).
3. Chemistry.
4. Mechanics.
5. Geography.
6. Mineralogy.
7. Sanitary Science.
8. Botany.
9. Physiology.
10. Mechanical Drawing.
11. Singing.

"Respecting the last item it might be said that it has been placed on the list after due enquiry into the practice of other similar institutions in which the singing classes are found to be highly successful, and to bring a recreative and humanizing influence into homes where music is highly appreciated, and where opportunity of learning is usually small.

Time Table of Subjects.

"The arrangements of a time table for the classes would be a subject for consideration by the Board, and it would be so arranged that the teachers and lecturers could be utilized on different evenings for the various classes. The year would consist of three terms of twelve weeks each.

Cheap Lectures.

"In addition to the regular classes in the various subjects, the Board should arrange for the delivery of rudimentary lectures at the nominal admission fee of five cents each lecture, which could be attended by anybody. Experience shows that these are highly popular and that they act as feeders for the regular classes. A man or woman will often attend a single lecture of this kind who would hesitate, at first, to join a regular course of study. But after hearing one or more of these lectures, such a person might determine to be a regular attendant.

Examination of Teachers.

"The Workmen's Technical Education Board should arrange for an Examining Committee to enquire into the qualifications of teachers and lecturers, and should request three graduates of the University of Toronto, or experts holding an equivalent status, to co-operate with three of their own number in this examination. The election of teachers and lecturers should be made with due regard to the report of such Committee.

Fees to be Paid by Those Attending Classes.

"Your Committee is of opinion that it will be in accordance with the views of those for whom it is proposed to institute these classes that nominal fees shall be charged. Their idea is that for fees ranging from $1.50 to $3 per year, and an expenditure in text books of from $1 to $3, working men and women may be enabled to join satisfactorily in the work of these classes.

Financial Scheme.

"Your Committee recommend that the Council grant to the proposed Workmen's Technical Education Board the sum of $6,376.50, which is based on the following approximate estimate of cost:

Dr.

Furniture, plant, and apparatus for four schools	$1,600
Staff of twelve teachers and lecturers	4,500
Salary of Secretary of Board	500
Rent, heat, light and caretakers, four schools	2,000
Printing, advertising, and sundries	750
	$9,350

Cr.

Fees from cheap lectures estimated to produce	$500	
Fees paid by regular attendants of classes	850	
		1,350
		$8,000

"N.B.—The above calculation is based on an average total attendance of 120 scholars at each of the four schools. It is probable, however, that a much larger number will be secured, which could be dealt with at almost the same expense.

"In conclusion, your Committee strongly recommend that immediate action be taken, as the time for making arrangements for the coming fall season is already short. The urgency of the need for these classes is beyond question."

* * * * * *

The Council in Committee of the Whole on above report amended the same by striking out the clauses therein having reference to the establishment of Technical Schools, for the purpose of referring the matter back to the Executive Committee for further consideration. The Council, with the Mayor in the chair, concurred in the action of the Committee of the Whole, and the matter was ordered to be so referred.

At the City Council meeting held on October 27, 1890, being in Committee of the Whole on Report 27 of the Executive Committee, the same was amended by striking out the words, "give the necessary notice of the intention of the city to apply to the Ontario Legislature at its next session for," where the same occur in the last clause of Report 5 of the Committee on Legislation, having reference to the establishment of Technical Schools, and inserting the words "requests the Minister of Education to secure the necessary legislation at the next session of the Ontario Legislature, whereby municipalities may be given the" necessary power.

Report No. 3 of the Executive Committee, dated January 28, 1891, contained the following:

"Respecting Technical Schools, your Committee have ordered that provision be made in the general estimates for a grant of $8,000, in anticipation of legislation, authorizing the expenditure by municipalities for such purposes, being passed at the ensuing session of the Ontario Legislature."

When the report was considered by the City Council at its meeting on February 2, 1891, the paragraph just quoted was struck out and referred back to the Executive Committee for further consideration.*

On May 5th, at the regular meeting of the City Council, a communication was read from Mr. John Galt, C.E., asking that some action be taken towards establishing Technical Schools for the working classes.

At a meeting of the City Council on May 15, 1891, on the question of the adoption of Report 17 of the Executive Committee, containing the estimates for the year:

Ald. HALLAM, seconded by Ald. ORR, in amendment, moved that the report as amended be not now adopted, but that it be further amended by inserting under the head "Executive Committee," in sub-section 2 of section 3 the following item: "For the purpose of establishing Technical Schools, $4,000," upon which the yeas and nays were taken as follows:

Yeas—His Worship the Mayor, Messrs. Hallam and Orr.—3.

Nays—Messrs. Allen, Atkinson, Farquhar, Flett, Foster, Hill, Joliff, Kerr, Lucas, Macdonald, MacMath, Pape, Park, Phillips, Rose, Saunders, Score, Shaw, Small, Stanley, Stewart and George Verral.—22.

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*At the 1891 session of the Ontario Legislature, Hon. G. W. Ross, Minister of Education, introduced a Bill entitled "The Municipal Amendment Act," the provisions of which amended the existing municipal law in several important particulars. At the solicitation of the City Council of Toronto section 495 of "The Municipal Act" was amended in the first named Bill by the addition thereto of the following sub-sections:

"13. For establishing schools for the training and education of artisans, mechanics and workingmen in such subjects as may promote a knowledge of mechanical and manufacturing arts, and for acquiring such real property as may be requisite for such schools; and for erecting and maintaining suitable buildings thereon; and for improving and repairing such school buildings, and for disposing of such property when no longer required.

"(a) The councils of any municipalities establishing such schools may appoint boards of trustees or managers to conduct the schools, giving them such authority or power for the management of the same as the councils may deem expedient.

"14. For making grants in aid of such schools as may be expedient."

This Act became law on May 4th, 1891, by the assent of His Honor the Lieutenant-Governor.

At the October 12, 1891, meeting of the City Council, Ald. Orr, seconded by Ald. Hallam, moved that the City Treasurer be and is hereby requested to set apart the sum of $6,000 for the purpose of establishing Technical Schools in the city, said amount to be taken from the Street Railway surplus.

Ald. Saunders, seconded by Ald. Boustead, moved that the foregoing motion be referred to the Executive Committee for consideration, and this motion prevailed.

Ald. Orr, seconded by Ald. Hallam, moved that His Worship the Mayor, with Alds. Boustead, McMurrich, Hallam, Kerr, Score, Graham, Leslie, Shaw, Saunders and the mover and seconder, be appointed a committee to consider the question of establishing Technical Schools in this city, and that all information in the possession of the City Clerk, City Treasurer, or other officers of the corporation be forwarded to the said committee for their consideration, which was carried.

At the meeting of the City Council held on November 21st, 1891, the following communication from the City Solicitor was read:

November 20th, 1891.

Re Technical Schools.

To the City Clerk, Toronto:

Dear Sir,—I have yours of yesterday with report of sub-committee on Technical Schools not yet considered by the council. You ask me to draw the necessary by-law.

It is most unsatisfactory to draw by-laws on reports which have not yet been considered by the council. Many amendments may be made which may altogether change the character of the by-law. I enclose a draft by-law, but I would not certify it until the report has been considered and passed by the council, but I think it would be more satisfactory that it should not be introduced until this has been read.

Yours truly,

C. W. R. Biggar.

At this meeting the City Council also received Report No. 36 of the Executive Committee and went into Committee of the Whole in consideration thereof. The report contained the following:

Report of Special Committee *re* Establishment of Technical Schools.

Your Committee appointed to consider the question of establishing Technical Schools in this city, beg to report that, after holding several conferences with representatives from the School of Practical Science, Trades and Labor Council and the Association of Stationary Engineers, the following conclusions have been arrived at, and, without again making any special references to the great good that will undoubtedly ensue from the establishment of schools of the nature proposed, it is strongly recommended that the same be adopted:

It is recommeded that one school well equipped and managed be established at present, the number to be increased when occasion arises, and that the said school be located in St. Lawrence Hall and the anterooms connected therewith. By adopting this recommendation a considerable saving in expense for rent and caretaking will be gained, as the said hall is very seldom used except for drill purposes, which is allowed free, and as the caretaker's services have to be retained to look after the cleanliness, etc., of the building generally.

In connection with the above your Committee would recommend that the Property Committee be requested to withdraw St. Lawrence Hall from the list of halls proposed to be leased by public tender.

Composition of Board of Management.

It is recommended that the direct control of the working of the schools be placed under the supervision of a Board to be appointed by the City Council by by-law at its first meeting in each year, and that the said Board be known as "The Toronto Technical School Board," and the same shall be composed of fifteen members to be selected from the following: Five from the City Council (which shall include His Worship the Mayor and the Chairman of the Executive Committee for the time being and three other members of the Council); five from the Trades and Labor Council, who shall be nominated officially from that body; two from the Association of Stationary Engineers, who shall be nominated by that Association; two educationists and one manufacturer, to be appointed by the City Council.

Officers of the Board.

It is recommended that the following officers be appointed annually by the Board at its first meeting in each year, viz.: A chairman and vice-chairman, and that a paid secretary be appointed permanently by the City Council by by-law, the person selected to be thoroughly conversant with educational work of the kind contemplated.

Opening of School.

It is recommended that the first school be put into operation as soon as practicable after the passing of the by-law establishing the Board, etc.

Subjects to be Taught and Number of Teachers.

It is recommended that the subjects to be taught and the number of teachers for each school be as follows:

Mechanics, one teacher; mathematics, one teacher; drawing and descriptive geometry, two teachers; chemistry and physics, one teacher. Total, five teachers.

Hours of Attendance.

It is recommended that the fixing of the hours of attendance be left in the hands of the Board, it being understood that the classes shall only be held in the evening.

Time Table.

It is recommended that the subjects be taught according to the following time table, subject to such change as the Board, herein referred to, may deem advisable in the interest of the schools, viz.:

Monday—Arithmetic (mathematics), mechanics.
Tuesday—Algebra (mathematics), chemistry and physics.
Wednesday—Euclid (geometry), mechanics.
Thursday—Algebra (mathematics), chemistry and physics.
Friday—Euclid (geometry). mechanics.
And that drawing be taught every night for two hours.

In order to carry out the above satisfactorily, the following rooms will be required, viz.: three lecture rooms, one draughting room, and one office.

Cheap Lectures.

In addition to the various subjects, it is recommended that the Board be requested to arrange for the delivery of rudimentary lectures at the nominal admission fee of five cents each lecture, which may be attended by any person.

Appointment of Teachers.

It is also recommended that the Board arrange for an Examining Committee to enquire into the qualification of teachers and lecturers, and the election of teachers and lecturers shall be made with due regard to the report of such Committee.

Fees to be Paid.

Your Committee are of opinion that it will be in accordance with the views of those for whom it is proposed to institute these classes that nominal fees shall be charged, and it is therefore recommended that the fees to be charged shall range from $1.50 to $3 per year, which amount, with an expenditure of from $1 to $3, will enable working men and women to join satisfactorily in the work of these classes.

Appropriation.

It is recommended that the Executive Committee be requested to appropriate the sum of $6,000 for the purpose aforesaid, this amount being based on the following estimated expenditure, viz.:

Furniture, plant and apparatus	$1,500 00
Teachers and lecturers (5)	2,500 00
Salary of Secretary	500 00
Heat and light	1,000 00
Printing, advertising and sundries	500 00
	$6,000 00

It might be here mentioned that the foregoing expenditure, it is thought, will be sufficient to maintain a school of 150.

Your Committee also recommend that the Chairman be authorized to introduce a draft by-law embodying so much of this report as the City Solicitor may deem necessary, and so far as the composition of the Board is concerned, the following names be inserted in the by-law as representing the bodies named, they having been already nominated, viz.:

Representing the Educationists—Prof. Galbraith and Dr. Ellis.

Representing the Manufacturers—Mr. John Inglis.

Representing the Trades and Labor Council—Messrs. F. C. Cribben, D. J. O'Donoghue, George Bradley, Robert Glockling and John Armstrong,

Representing the Architects' Association—Two members to be nominated by that Association.

Representing the Association of Stationary Engineers—Messrs. A. M. Wickens and J. A. Wills; and that the name of Mr. Alex. Horwood be inserted in the said by-law as permanent secretary at a salary as above mentioned.

Respectfully submitted.

J. O. ORR,
Chairman.

COMMITTEE ROOM,
Toronto, November 6th, 1891.

On rising the Committee of the Whole reported certain amendments to the report of the Executive Committee. Among these amendments were striking out the clauses in the report of the Special Committee with reference to the establishment of Technical Schools, recommending the appointment of a secretary of the new Technical School Board by the Council, and adding to the clause in the same report setting forth the composition of the said Board the following: "Representing the Architects' Guild—two members to be nominated by the Guild." On motion to adopt

Ald. ORR, seconded by Ald. HALLAM, in amendment, moved that "the report as amended be not now adopted, but the clauses recommending the appointment of a Secretary of the Technical School Board by the Council in Committee of the Whole be reinserted in the report, and that the name of Alexander Horwood be inserted in the blank in the last of the said clauses," upon which the "yeas" and "nays" were taken as follows:

Yeas—His Worship the Mayor; Messrs. Bailey, Bell, Crealock, Graham, Hallam, Hewitt, Kerr, Leslie, Lucas, Maloney, Orr, Saunders, Shaw, Stanley and Stewart—16.

Nays—Messrs. Allen, Boustead, Hall, Hill, Joliffe, Macdonald, MacMath, McMurrich, Park, Phillips, Rose and George Verrall—12.

Ald. ORR, seconded by Ald. CREALOCK, at a meeting of the City Council, held December 7th, 1891, moved for leave to bring in a Bill to establish a school for the training of artisans, mechanics and workingmen in subjects which may promote a knowledge of mechanics and manufacturing arts. Leave being granted, the Bill was introduced and read a first time. A suspension of rules governing the Council being then secured, the Bill was read a second time. The Council then went into Committee of the Whole to consider the measure, which was as follows:

A BY-LAW

To establish a school for the training of artisans, mechanics and workingmen in such subjects as may promote a knowledge of mechanical and manufacturing arts..

[Passed December 7th, 1891.]

Whereas by section 495 of the Municipal Act, as amended by section 19 of the Act, 54 Vict. (Ont.), Cap. 42, the council of any city is empowered to pass by-laws for establishing schools for the training and education of artisans, mechanics and workingmen in such subjects as may promote a knowledge of mechanical and manufacturing arts;

And whereas it is by said Acts provided that the council of any municipality establishing such schools may appoint a board of trustees or managers to conduct the school, giving them such authority or power for the management of the same as the said council may deem expedient;

And whereas the said Acts also authorize grants to be made in aid of such schools as may be deemed expedient;

And whereas the Municipal Council of the corporation of the city of Toronto deems it expedient to establish one such school in the city of Toronto, to be located in the St. Lawrence Hall and the ante-rooms connected therewith;

Therefore the said the Municipal Council of the corporation of the city of Toronto enacts as follows:

I.

A school for the training and education of artisans, mechanics and workingmen in such subjects as may promote a knowledge of mechanical and manufacturing arts, is hereby established in the city of Toronto, such school to be located in the St. Lawrence Hall and the ante-rooms connected therewith.

II.

The said school shall be under the supervision and control of a board to be appointed by the said Council by by-law at the first meeting thereof in each municipal year.

III.

The said board shall be known as "The Toronto Technical School Board," and shall be composed of seventeen members as follows: (1) Five to be appointed by and from the said Municipal Council, and to consist of the Mayor of the city, the Chairman of the Executive Committee, and three other members of the said Council.

(2) Five members to be nominated by and from the Trades and Labor Council of said city.

(3) Two members to be nominated by and appointed from the Association of Stationary Engineers, together with two members from the Architectural Guild of Toronto, two educationists and one manufacturer, the last three to be nominated and appointed by the said City Council.

IV.

The said Trades and Labor Council may, prior to the first meeting of the City Council in any municipal year, nominate from amongst themselves the five persons to represent their body, but in case the said Trades and Labor Council do not nominate such persons and notify the City Clerk of such nomination in sufficient time to allow of them being appointed as aforesaid at the first meeting of the Council, then such five members may be selected and appointed by the City Council from among the members of the said Trades and Labor Council.

V.

The Association of Stationary Engineers and the Architectural Guild may, prior to the first meeting of the City Council in any municipal year, nominate two of the members of their respective bodies to be members of the said board, and notify the City Clerk of such nomination, and upon default thereof the said two members of each of said bodies may be selected and appointed by the City Council from any members of the said Association and Guild respectively.

VI.

In case the City Council fails to appoint the said board at the first meeting of the council, it may do so at any subsequent meeting.

VII.

From the date of the passing of this by-law, and until a new board is appointed by the Municipal Council of the city of Toronto in and for the year 1893, the said Technical School Board shall consist of (1) the Mayor for the time being of the city of Toronto; (2)

the Chairman of the Executive Committee of the Council thereof; (3) Mr. Alderman Orr, (4) Mr. Alderman Hallam, (5) Mr. Alderman Kerr, representing the corporation of the city of Toronto; (6) Mr. Frederick C. Cribben, (7) Mr. Daniel J. O'Donoghue, (8) Mr. George Bradley, (9) Mr. Robert Glockling and (10) Mr. John Armstrong, representing the Trades and Labor Council; (11) Mr. Albert M. Wickens, and (12) Mr. John A. Wills, representing the Association of Stationary Engineers; (13) Mr. Edmund Burk, and (14) Mr. Samuel George Curry, representing the Toronto Architectural Guild; (15) Professor John Galbraith, and (16) Dr. William Hodgson Ellis, Educationists; and (17) Mr. John Inglis, Manufacturer.

VIII.

The sum of six thousand dollars is hereby granted to the said Technical School Board to defray the expenses of the said school for the municipal year 1892-3.

IX.

The said board shall hold their first annual meeting on the first Monday in February in each year, and at such meeting shall elect from among themselves a chairman and vice-chairman, and may from time to time prescribe the respective duties of such officers.

X.

The said board shall have full power to determine the subjects to be taught in such school, and the number of teachers to be engaged, and may appoint such teachers and fix their respective salaries; and may also fix the times of holding such school, the time when each such subject shall be taught therein, the fees to be paid by persons attending the school, and such other matters as may be or become necessary.

XI.

Mr. Alexander Horwood is hereby appointed secretary of the said board at a salary of $500 per annum.

I certify that I have examined this Bill and that it is correct.

JOHN BLEVINS,
City Clerk.

COUNCIL CHAMBER,
Toronto, December 7th, 1891.

E. F. CLARKE,
Mayor.

The Committee of the Whole having reported to the Council, and the question being upon the adoption of the Bill,

Ald. MCMURRICH, seconded by Ald. HILL, in amendment, moved "that the Bill be not now adopted, but that it be further amended by striking out section 11, which provides for the appointment of a Secretary of the Technical School Board, and fixes the salary of that officer," upon which the "yeas" and "nays" were taken as follows:

Yeas—Messrs. Gibbs, Hall, Hallam, Hill and Park—6.

Nays—His Worship the Mayor, Messrs. Atkinson, Bailey, Bell, Burns, Crealock, Flett, Foster, Gowanlock, Graham, Hewitt, Kerr, Leslie, Lucas, Macdonald, MacMath, Maloney, McDougall, Orr, Phillips, Rose, Saunders, Score, Shaw, Small, Stanley, Stewart and J. E Verrall—27.

Ald. MCMURRICH, seconded by Ald. HALLAM, in amendment, moved "that the Bill be not now adopted, but that it be amended by striking out the words '$500 per annum' at

the end of section 11 and inserting the words 'to be determined upon by the Board of Directors," in lieu thereof, and the "yeas" and "nays" being taken thereon, the result was as follows :

Yeas—Messrs. Allen, Farquhar, Gibbs, Hall, Hallam, Hill, Joliffe, Maloney, McMurrich, Park and Saunders—11.

Nays—His Worship the Mayor, Messrs. Atkinson, Bailey, Bell, Burns, Crealock, Flett, Foster, Gowanlock, Graham, Hewitt, Kerr, Leslie, Lucas, Macdonald, MacMath, McDougall, Orr, Phillips, Rose, Score, Small, Stanley, Stewart and J. E. Verrall—25. On motion the Bill was read a third time.

On motion of Ald. Orr, seconded by Ald. Crealock, the Bill was entitled "A By-law to Establish a School for the Training of Artisans, Mechanics and Workingmen in such subjects as may promote a knowledge of Mechanics and Manufacturing Arts."

The Toronto Technical School Board, as established by by law of the City Council, consisted of the following gentlemen, viz. :

The Mayor of Toronto,
(Mr. E. F. Clarke.)
The Chairman of the Executive Committee. (Ald. Saunders.)
Ald Dr. J. O. Orr,
Ald. J. Hallam,
Ald. J. Kerr,
Prof. Ellis,
Prof. Galbraith,
John Armstrong,
George Bradley,
Fred. C. Cribbin,
Robt. Glockling,
D. J. O'Donoghue,
John Inglis,
A. M. Wickens,
J. A. Wills,
E. Burke,
S. G. Curry,
A. G. Horwood, Secretary.

At the first formal meeting of the Board, Ald. Dr. J. O. Orr was chosen Chairman, and Prof. Galbraith, Vice Chairman. It was at once perceived that the St. Lawrence Hall building was altogether unsuitable for the purposes of the new school, and the Board accordingly secured the unoccupied premises known as "Old Wycliffe Hall," on College avenue, at the head of McCaul street, the property of the "Park Hospital Trust," at a rental of $300 for the first half year.

The school was opened for the enrolment of students on January 25th, 1892, and instruction therein began to be imparted on the evening of the day following.

The teaching staff at the opening consisted of John A. Duff, B.A., graduate of of the School of Practical Science, Toronto, Principal and teacher of Mechanics ; G. Chambers, B.A., M.B., teacher of Chemistry and Physics ; A. M. Bowman, graduate S.P.S., and E. B. Merrill, graduate S.P.S., teachers of Descriptive Geometry and Drawing, and John McMaster, B.A., teacher of Mathematics.

The Prospectus for the year 1892, issued before the school opened, was as follows :

The Toronto Technical School has been established by the City of Toronto, for the benefit of any who may desire to obtain a technical education.

Instruction will be given in the following subjects :

Mathematics,
Chemistry,
Descriptive Geometry,
Mechanics,
Physics,
Drawing.

The courses will be optional, each student being at liberty to choose his own studies, subject to the time table given below.

It has been found necessary to have lectures on more than one subject at the same hour, but the time table has been so arranged that no two lectures which would necessarily be taken by the same student occur at the same hour.

The school will open for the enrolment of students on Monday, 25th January, in the building known as Old Wycliffe Hall, situated on College avenue at the head of McCaul street.

Instructions will commence on the following evening and will continue until the 1st of May.

The school will reopen on the 1st of October, 1892.

The hours of instruction will be from 8 to 10 p.m. on each Public School day of the week.

Intending students are requested to be present, as far as possible, on the opening night, for the purpose of enrolment.

There is no fee or charge for admission ; but each student will be required to make a deposit of two dollars as a guarantee of good conduct and regular attendance. This deposit is to be made during the first month and to be returned at the end of the year, on the recommendation of the Principal.

Each student in Drawing will be required to make a deposit of twenty-five cents on a key for locker, which will be refunded on the return of the key.

The drawings which are to be finished, must be made on paper 15 x 22 inches, unless otherwise prescribed. The staff will have the right of making such disposal of the drawings as will be to the best interests of the school.

Students are expected to conform in all matters of discipline and conduct to whatever regulations may be enacted by the teaching staff.

Students will be required to supply their own text books, drawing instruments and materials. Full information respecting these will be given on application to the Principal.

TIME TABLE.

Instruction will be Given During the Year 1892, According to the Subjoined Programme :

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8-9 p.m	Statics. Arithmetic and Mensuration. Drawing.	Practical and Descriptive Geometry. Drawing.	Statics. Arithmetic and Mensuration. Drawing.	Practical and Descriptive Geometry. Drawing.	Euclid. Chemistry and Physics. Drawing.
9-10 p.m.....	Algebra. Drawing.	Trigonometry. Drawing.	Chemistry and Physics. Drawing.	Dynamics. Drawing.	Algebra. Drawing.

The following is a synopsis of the courses of lectures and practical instruction given in each subject :

Synopsis of the Courses of Lectures and Practical Instruction Given in Each Subject :

Drawing and Descriptive Geometry.

Instrumental and Freehand Drawing, Lettering, Problems in Geometry and Mechanics, Graphical Calculations, Drawing from Copies and Models, Examples of Machine and Building Construction.

The course of lectures will comprise :

PRACTICAL GEOMETRY.

To give facility in the use of Drawing Instruments and the construction of various Geometrical Figures.

DESCRIPTIVE GEOMETRY.

Orthographic Projection.—The representation of objects by means of a plan and elevation, problems leading up to and solved thereby, such as the determination of the forms of different sections of solids and the intersections of surfaces, as of cylinders, Cones, etc.

Instruction will also be given in Oblique and Perspective Projection.

Most of these lectures will be given in the Drafting Room, and the student will do the work on his drawing board as the lecture proceeds.

TEXT BOOKS.

	Estimated Cost.
Practical Geometry of the H. S. Drawing Course	$0 15
Davidson's Projections	0 70

LIST OF DRAFTSMAN'S SUPPLIES.

Each student in Drawing will be required to provide himself with one Drawing Board, 17 x 24 inches; T Square; Set Square, 60° and 30°; Ruling Pen; Dividers; Compasses, with point, pencil and pen; Fractional Scale; Foot Rule; French Curve; Oil Stone; Thumb tacks; Pens, Pencils, Rubbers, Indian Ink, Paper.

Estimated minimum cost, $6.50.

CHEMISTRY AND PHYSICS.

CHEMISTRY.

Objects of Chemistry, Definition and Illustration of the terms, Element, Compound, Mechanical Mixture, Names of the Elements, Symbols, Laws of Combinations, Atomic Weights, Nomenclature, Chemical and Physical Change, Indestructibility of Matter.

Each element will be studied as to its occurrence, preparation properties, compounds and uses in the arts. Special attention will be paid to those chemical processes which are of technical value, such as Electrolysis, Manufacture of Coal Gas, Steel, Wrought Iron, etc.

PHYSICS.

Constitution, states and properties of matter, with practical illustrations.

Hydrostatics.—General Character of Liquids, Pressure in Liquids, Specific Gravity of Liquids, Hydrostatic Balance, Hydraulic Press, Hydraulic Ram, Spirit Level, Artesian Wells, Hydrometers, Lactometers, Solinometers.

Properties of Gases, Atmosphere, Atmospheric Pressure, Barometers, Pumps, Balloons, Siphons.

Heat.—Nature, Sources, Transmission, General Effects, Thermometers, Melting Points of Solids, Boiling Points of Liquids, the Relation of Atmospheric Pressure to the Boiling Point, Vacuum Pans, Freezing Mixtures, Distillation, Evaporation, Latent Heat, Specific Heat, Steam Engines.

NOTE.—The Board, after due consideration, some time after the school was in operation, by resolution ordered that the exaction of $2 from each pupil as a deposit be discontinued, and that the deposits already made be returned to the pupils.

Sound.—Cause of Sound, Propagation, Loudness, Pitch, Velocity, Reflection, Refraction, Speaking Tubes, Ear Trumpets.

Light.—Theory of Light—Rays, Pencils, Shadows, Intensity, Candle Power; Reflection—Mirrors, Images; Refraction—Lenses, Telescope, Microscope, Camera; Analysis of White Light—Spectrum, Color.

Electricity and Magnetism.—Potential Magnets, Magnetic Needle, Compass, Conduction, Insulation; Frictional Electricity—Electric Machines, Leyden Jar; Relation of Electricity to Chemical Action—Current Electricity, Poles, Electrodes, Electromotive Force, Electric Batteries, Dynamos, Telephone, Telegraph.

TEXT BOOKS.

	Estimated Cost.
High School Physics	$1 00
Roscoe's Elementary Lessons in Chemistry	1 25
Bloxam's Chemistry (*for advanced Students*)	4 00

MATHEMATICS.

ARITHMETIC.

Numeration and Notation, the Fundamental Operations, Addition, Subtraction, Multiplication, Division, Greatest Common Measure and Least Common Multiple, Fractions, Decimals, Ratio and Proportion, Square Root, Logarithms.

MENSURATION.

The Mensuration of Surfaces and Solids, such as Triangles, Circles, Cones, Pyramids, Spheres—as far as practicable without the use of Trigonometry.

ALGEBRA.

The use of Signs and Symbols, Elementary Rules, Factoring, Highest Common Factor and Lowest Common Multiple, Fractions, Ratio, Simple Equations of one, two and three unknown quantities, Indices, Surds, Square and Cube Root, Quadratic Equations of one or two unknown quantities.

EUCLID.

Books I., II., III., and such portions of IV. and VI. as may be necessary for the work in Trigonometry and Mechanics.

TRIGONOMETRY.

The Measurement of Angles, Significance of Signs, Trigonometrical Ratios of an Angle with their relations to each other, Transformations, Trigonometrical Ratios of the sum and difference of Angles, Solution of Triangles, Expressions for the Area of Triangles, Radii of Circumscribed, Inscribed and Escribed Circles, the application of Logarithms.

TEXT BOOKS.

	Estimated Cost.
High School Arithmetic	$0 60
High School Algebra	0 75
Hamblin Smith's Trigonometry	0 75
McKay's Euclid, I., II., III.	0 50
" " complete	0 75

MECHANICS.

Theory of Vectors.

STATICS.

Representation and Measurement of Forces, Statical Units, the Determination of the Resultant of a Set of Forces acting in the same Plane, the Investigation of the Conditions of Equilibrium of a Rigid Body, Theory of the Lever, Pulley and other simple Mechanical Powers, the Calculation of the Stresses in Framed Structures, the Theory of the Simple Beam.

KINEMATICS.

The Representation and Measurement of Motions, Kinematic Units, the Determination of the Resultant Motion, Uniform Motion in a Circle.

DYNAMICS.

Relation between Force, Mass and Motion, Newton's Laws, Dynamical Units, Friction, Work, Energy, Power, the Efficiency of Machines.

In Mechanics, both Analytical and Graphical Methods will be employed; no text book will be prescribed.

The grant of $6,000 by the City Council was based upon a contemplated attendance of about 150 scholars. The number registered, however, during the first term reached 305. The occupations of these were as follows:

No. of each.	Occupation.	Employers.	Journeymen.	Apprentices.	No. of each.	Occupation.	Employers.	Journeymen.	Apprentices.
57	Clerks	....	....	....	1	Governess	....	....	....
29	Machinists	....	14	15	1	Employee, School of Science	....	....	....
28	Students	....	....	....	1	Watch Case Maker	....	....	1
26	Electricians	....	11	15	1	Bridge Builder	....	1	....
18	Carpenters	....	13	5	1	Paper Box Maker	....	1	....
8	Bricklayers	....	2	6	1	Lithographer	....	....	1
8	Draughtsmen	...	5	3	1	Steamboat Fireman	....	....	....
7	Architectural Students	....	....	....	1	Scalemaker	....	1	....
7	Tinsmiths	....	7	...	1	Optician	....	....	1
6	Engineers	....	....	....	1	Photographer	....	1	....
5	Cabinetmakers	....	4	1	1	Spectacle Maker	....	....	1
5	Patternmakers	....	2	3	1	Plumbing Inspector	....	....	....
5	Steamfitters	....	1	4	1	Builder	1	...	....
5	Plumbers	1	1	3	1	Shipper	....	....	....
4	Office Boys	....	....	....	1	Pressman	....	....	....
4	Brassworkers	....	1	3	1	Wood Engraver	....	1	....
4	Bookkeepers	....	....	....	1	Card Edge Gilder	...	....	1
4	Jewellers	....	1	3	1	Carriage Woodworker	....	....	1
4	Druggists	....	1	3	1	Butcher	....	....	....
4	Iron Moulders	....	3	1	1	Carter	....	....	....
3	Stonecutters	....	2	1	1	Timekeeper	....	....	....
3	Painters	....	1	2	1	Grocer	1	....	....
3	Printers	....	1	2	1	Photo Mount Maker	....	1	....
3	Stenographers	....	....	....	1	Organ Reed Maker	....	1	....
2	Plasterers	....	2	....	1	Brickmaker	....	1	....
2	Tailors	....	2	....	1	Journalist	....	....	....
2	Gasfitters	....	2	....	1	Barb Wire Maker	....	1	....
2	Blacksmiths	....	2	....	1	Pill Coater	....	1	....
2	Machine Operators	....	2	....	1	Die Sinker	....	1	....
2	Surveyors	....	....	....	1	File Cutter	....	....	1
2	Sheet Iron Workers	....	2	....	1	Telephone Operator	....	1	....
2	Pianomakers	....	1	1	1	Safemaker	....	1	...
2	Smelters	....	1	1	1	Keymaker	....	1	....
2	Watchmakers	....	1	1					
2	Confectioners	....	2	....	305	.....Total.			

The ages of these 305 pupils varied from 12 to 59 years.

Besides the $6,000 provided by by-law for the purposes of the school a sum of $1,600 (unexpended balance to credit of Public Library Board) was added in lieu of use of St. Lawrence Hall, which, as before stated, was found unsuitable for the purpose intended. The total expenditure for the year was $6,931.95, leaving an unexpended balance, according to the City Auditors' Report, of $667.05. Against this credit balance were chargeable, however, outstanding accounts not rendered, aggregating a like sum.

On the re-opening of the school on October 1st, 1892, some changes and additions were made in the teaching staff as well as in their respective duties, E. B. Merrill, B. A., taking charge of the Department of Mathematics and Physics; G. Chambers, B.A., M.B., taking Chemistry and Physics; while E. R. Babington, O. A. A., and R. W. Thomson, B.A.Sc., Grad. S.P.S., were appointed teachers of Descriptive Geometry and Drawing.

Abstract of an Address delivered by Mr. John A. Duff, Principal of the Toronto Technical School, at the Opening of the Second Term on October 3rd, 1892.

It has been announced that I am to speak to-night on "The Benefit of Technical Knowledge in Mechanics and Industrial Pursuits." It would probably be inferred that I would endeavor to enumerate the advantages and advocate the claims of technical education in general, but I do not think that anyone will be disappointed at hearing that such is not my intention, for I feel sure that everyone will be more interested in hearing what facilities for such education are provided by the Toronto Technical School, and by explaining the scope and bearing of the subjects taught I think I can more effectively than in any other way make clear to you the advantages to be derived therefrom.

The history of the Toronto Technical School is brief. In December of last year the City Council passed a by-law appointing a Board of Management and giving them an appropriation of $6,000 and the free use of St. Lawrence Hall. The board at once began the work of organization, teachers were appointed, and the courses of study decided upon, and St. Lawrence Hall having been found unsuitable, this building was secured and the necessary alterations made with such expedition that by the first of February the work of the session was well commenced. The attendance from the first was large and was well maintained throughout the term and very satisfactory progress was made.

Such has been the past. There is every reason to hope that the coming year will be still more successful, and that the Toronto Technical School will rapidly become a great power for the dissemination of scientific knowledge and habits of correct thought. With additional teaching power we have been able to make the course of study more comprehensive. Trigonometry will be taught twice a week instead of once, which was all the time we were able to devote to it last year, and, if necessary, the classes in Arithmetic and Mensuration will be sub-divided. Arrangements have been made for three classes per week in Chemistry and Physics, which will enable us to provide a tolerably complete course in Electricity—that mysterious element which seems destined to usher in a new era of civilization. There is thus provided for the current year the following distinct courses of study and Mathematics, including Arithmetic, Mensuration, Algebra, Euclid, Trigonometry, Practical Geometry, Descriptive Geometry, Mechanical and Architectural Drawing; Mechanics, including Statics, Kinematics and Dynamics; Chemistry and Physics, including Hydrostatics, Heat, Sound, Light and Electricity.

Each student is allowed to select his own studies, subject only to the requirements of the time table. With only ten teaching hours in the week, it is impossible to make provision for all the classes without having different subjects occur at the same time, and thus to some extent the freedom of choice in the selection of studies is curtailed. The time table has been, however, carefully arranged, so that the least possible inconvenience will be felt from this source. For example, if a student has so far forgotten his Arithmetic that it would be necessary for him to take lessons in that subject, he would not be able until he has become familiar with Arithmetical operations, to derive much benefit from the lessons in Mechanics. We have, therefore, put Arithmetic and Mechanics down

or the same hour, and the students who find it necessary to review their Arithmetic, and who wish to study Mechanics, will find it not a hardship but very much to their advantage to take Arithmetic during the present session and defer the Mechanics for another year. As the success of the student, and therefore of the school, depends largely on the proper selection of the course of study, let me briefly describe the different subjects taught, and incidentally mention some of the advantages derived from each.

Let us begin with Mathematics, the interpreter and herald of scientific knowledge, and without which little or no progress can be made. Mathematics is one of the most potent instruments of scientific investigation, besides being the only foundation on which exact scientific knowledge can be built. In Science and Engineering theories are of little value unless they are exact and definite, and we cannot have the exactness without Mathematics. A knowledge of Mathematics is not necessary in order to understand the general laws of nature, but it is necessary in order to state those laws with exactness or make any practical application of them. Anyone can understand that water will flow through pipes, but no one can calculate the quantity which will flow through a given pipe in a given time without a knowledge of Mathematics. I do not mean to say that Mathematics must be pursued to its highest development, but it is necessary to have at least a good working knowledge of Arithmetic, Algebra and Geometry.

The course on Arithmetic—the corner-stone of mathematics—will comprise instruction in numeration and notation, the operations of addition, subtraction, multiplication and division; the use of fractions and decimals, ratio and proportion, the m thod of extracting square root, and the theory of logarithms—in short, a complete course in pure Arithmetic, including all the arithmetical operations which are used in the other branches of Mathematics and Science, but excluding Commercial Arithmetic, which is the application of the foregoing rules to the computation of interest, discount, stocks, annuities, etc., and which finds its proper place in the curriculum of a business college.

Along with Arithmetic are taught the rules of Mensuration, by means of which the areas of surfaces and the volumes of solids may be calculated and compared. A knowledge of these rules may be required by any man at any time or place.

In Algebra the work will be the same as that which is ordinarily taught in the High Schools of Ontario, which is all that is usually studied in pure or applied science. I will not occupy your time with a more particular enumeration, but I wish to impress upon all intending students the vital importance of Algebra in Chemistry and Physics. In these sciences formulæ occur which can only be properly expressed by algebraic symbols, and the only practical method of solving problems or determining unknown quantity is by means of algebraic equations. But if Algebra is of so great importance in Chemistry and Physics, it is absolutely indispensable to the proper study of Natural Philosophy or Mechanics. Very few calculations involving force or motion can be made without its aid, and without Algebra a knowledge of Mechanics must always prove to be incomplete and unproductive. What has been said of Algebra is true to almost as great a degree of Trigonometry and Euclid's Elements of Geometry. Euclid has the further advantage of being one of the most perfect systems of logic that has ever been constructed, and no one can master Euclid without becoming a logician.

Let me here remark that the aim of higher education ought not to be so much to fill the student with dry facts as to teach him how to use what knowledge he already possesses—in other words, to teach him how to think properly and to act accordingly. And one of the greatest works that a technical school can do is to teach mechanics the *art of thinking*. To this there is no study so efficacious as Mathematics for there is no other branch of knowledge so exact and definite, and there is no other in which the reason alone is employed.

In Chemistry it is proposed to teach the mode of occurrence, the nature and methods of preparation of different elements and compounds which are of importance in every-day life, special attention being given to those substances and processes which are of technical value, such as electrolysis, coal, and the manufacture of coal gas, iron and steel, mortars and cements.

Lying in the borderland, between Chemistry and Physics, is the study of the co stitution and properties of matter. A few lectures will be devoted to this very interesting subject.

Under Hydrostatics will be taught the general character and properties of liquids and the theory of the common hydrostatic and hydraulic instruments, such as the hydrostatic balance, hydraulic press, spirit level, hydrometers, electrometers, etc. Along with hydrostatics, though scarcely belonging to it, come the physical properties of gases and the atmosphere, the theory of the barometers, pumps, baloons and siphons.

The course on Heat will embrace the nature, sources, transmission and general effects of heat, the theory and construction of thermometers, the determination of the melting and boiling points, freezing mixtures, distillation and evaporation, and the theory of steam engines.

Lectures will be given on the elementary theory of Sound and Light, in which the theory and construction of optical and musical instruments will be described.

Electricity will be taught in two divisions. The relation of Chemistry to Electricity, and the theory and construction of electric batteries will be described in connection with the course on Chemistry. In connection with Physics there will be a course on Magnetism and Current Electricity, the theory and construction of the dynamo, telephone and telegraph, and the applications of electricity in daily life.

In Chemistry and Physics the lectures will be illustrated by experiment as far as our apparatus will permit. We hope that very soon, though perhaps not during the present year, there will be a laboratory in connection with the school, in which practical work in Chemistry and Physics may be done by advanced students. The advantages to be derived therefrom must be apparent to all, and let us therefore hope that it will soon be an accomplished fact. There will be a course on Practical Geometry, which is intended to give facility in the use of drawing instruments and the construction of geometrical figures. It will be found very useful as an introduction to the course on Descriptive Geometry or the theory of projection. That on Descriptive Geometry will comprise the representation of objects by means of a plan and elevation, and problems leading up to and solved thereby, such as the determination of the form of the intersection of two cylinders, or cylinder and a cone, together with instruction in oblique and perspective projection. This course, which involves the theory of drafting, is of great utility not only to those who are trying to perfect themselves as mechanical or architectural draftsmen, but to sheet metal workers and any whose occupation requires them to have some knowledge of working drawings, as pattern-makers, boiler-makers, machinists, etc.

In connection with the Descriptive Geometry, practical instruction will be given in the drafting room in instrumental drawing, lettering, etc., for which purpose copies and models of machine and building construction will be available. This instruction will be given to the students individually, and for this purpose the drafting room will be open and an instructor will be present during every teaching hour of the school. A student who takes this course of practical work in the drafting-room should be able by the end of the year to read a drawing without any difficulty and also to make a fairly good original drawing, and at the end of two years he should be a fairly good draftsman.

The course on Mechanics will embrace the theory of vectors, the representation, measurements, and laws of forces and motions, the theory of equilibrium, theory of the lever, pulley and other simple mechanical powers, the calculation of stresses, theory of the simple beam, the transmission of force and motion, friction, work, energy, power, the efficiency of machines and the elements of machine design.

I hope that this brief outline of the courses of instruction will enable intending students to choose wisely the subjects which they most require. But should there be any who are still unable to make a choice, the teachers will be glad to give whatever further information may be required. Most students will find that they will be unable to pursue more than two or three courses of study during the year. I would advise those who thus find it necessary to defer some of their studies, to take their Mathematics first, for the reason which I have already given, that a knowledge of Mathematics is essential to a proper study of the other subjects. From what I have said, or from a reference to the prospectus, it might be inferred that we expected to complete all our course of study in one year, but

such is not the case. In Algebra, Euclid, Descriptive Geometry, and perhaps some of the other subjects, two years will be required to complete the course, and it is expected that the advanced classes in these subjects will be formed next October. And without interfering with the perfect freedom of choice now enjoyed by students wishing to pursue a special line of study, it is hoped that we will then be able to announce the programme for a regular course embracing two or three years. The experience of the past winter has convinced me that in Toronto the demand for technical education is urgent, but the citizens may rest assured that on the part of the Board of Management or the Teaching Staff of the Technical School, no effort will be wanting to supply that demand.

In 1893-4 the members constituting the Toronto Technical School Board were :

THE MAYOR OF TORONTO (Mr. R. J. Fleming),
THE CHAIRMAN OF THE EXECUTIVE COMMITTEE (Ald. Saunders),
ALD. DR. J. O. ORR,
ALD. J. BAILEY,
ALD JOHN K. LESLIE,
MR. J. INGLIS,
MR. J. A. WILLS,
MR. A. M. WICKENS,
PROF. J. GALBRAITH,
PROF. W. H. ELLIS,
MR. E. BURKE,
MR. W. R. STRICKLAND,
MR. JOHN ARMSTRONG,
MR. D. J. O'DONOGHUE,
MR. F. C. CRIBBEN,
MR. THOS. W. BANTON,
MR. ROBT. GLOCKLING,
MR. A. G. HORWOOD, Secretary.

At the beginning of this year Mr. John A. Wills was elected Chairman, and Mr. John Inglis, Vice-Chairman. Later on the death of Mr. Wills rendered the chair vacant, and Mr. Inglis became Chairman, with Mr. J. Armstrong as Vice-Chairman. The chairmen of the several committees during 1893 4 were : Mr. D. J O'Donoghue, Finance ; Prof. J. Galbraith, School Management ; Mr. R. Glockling, Printing and Supply, and Mr. A. M. Wickens, Property. During this year, also, Miss Edith Curzon, B.A., Dominion Analyst, was appointed Demonstrator of Applied Chemistry—making altogether a teaching staff of seven, rendered imperatively necessary by reason of the phenomenal increase in the number of pupils in attendance at the school.

Apart from the abolition of the rule that "each pupil will be required to make a deposit of two dollars as a guarantee of good conduct and good attendance," several other changes by way of elaboration were made in the management in 1893-4, as indicated in the prospectus of that course as follows :

The Toronto Technical School has been established by the city of Toronto, for the benefit of any who may desire to obtain a technical education

The school is situated on College avenue, at the head of McCaul street, in the building known as Old Wycliffe Hall.

There is no fee or charge of admission to any of the classes.

Application for admission may be made at the school on any evening during the last week in September, at from 7 to 8.

The first term begins on 1st October and ends on 22nd December. The second term begins on 8th January and ends 30th April. The hours for instruction are from 7.45 to 9.45 p m. The course of instruction includes : Mathematics, Chemistry, Descriptive Geometry, Mechanics, Physics and Drawing.

The regular course in Algebra, Euclid, Mechanics, Chemistry, Electricity, Descriptive Geometry and Drafting covers a period of two years.

The course in each of the other subjects is completed in one session.

No student will be allowed to pursue the senior work in any subject without furnishing evidence of proficiency in the junior work in that subject and also in junior Mathematics.

The course of study is optional, each student being at liberty to choose his own, subject only to the time table and to the foregoing regulation.

It is necessary to have classes in more than one subject at the same hour, but the time table has been so arranged that as little inconvenience as possible will result therefrom.

New students are admitted at any time during the session, but attention is directed to the great advantage to be derived from commencing promptly on the first of October, when the classes are being organized.

Any student who is absent from his regular classes three times in succession, without a satisfactory reason being given, forfeits his position in the school. Students absent for sufficient cause and who wish to retain their position, should report to the Principal, either in person or in writing, before three absences have been recorded.

A Certificate of Proficiency will be granted to each student who has successfully pursued the course in any subject through one session, and has passed the prescribed examinations therein.

The regular course for the Diploma of the school will include the junior work in all the subjects and the senior work in either one of the two following groups :

(*a*) Mathematics, Mechanics, Descriptive Geometry and Drawing.

(*b*) Mathematics, Chemistry and Physics.

The annual examinations will be held during the latter part of April.

Each student in Practical Chemistry will be required to make a deposit of two dollars to make good losses and breakages in the apparatus. The balance will be refunded at the close of the session.

Each student in Drawing will be required to make a deposit of 50 cents on a key for locker, which will be refunded at the close of the session, when the key must be returned. No refund will be allowed on keys not returned before the end of the session.

The drawings, which are to be finished, must be made on paper 15x22 inches, unless otherwise prescribed. The staff will have the right of making such disposal of the drawings as will be to the best interests of the school.

Students are expected to conform in all matters of discipline and conduct to whatever regulations may be enacted by the teaching staff.

Students will be required to supply their own text books, drawing instruments and materials. Full information respecting these will be given on application to the Principal.

Number and Occupations of Pupils Attending the Technical School, Session 1893-4.

No. of each.	Occupation.	Apprentices.	Journeymen.	Employers.	No. of each.	Occupation.	Apprentices.	Journeymen.	Employers.
92	Clerks	....	....	...	2	Photo-Engravers	....	2	....
69	Students	....	....	....	2	Inspectors of Plumbing	....	....	....
62	Machinists	30	32	....	2	Gilders	2	....	....
27	Carpenters	4	22	1	2	Litho-Designers	....	2	....
19	Electricians	14	5	....	2	Firemen	....	2	....
17	Plumbers	6	11	....	2	Piano Action Makers	....	2	....
15	Printers	7	8	....	2	Paper Box Makers	....	2	....
15	Office Boys	....	....	....	1	Boat Builder	....	1	....
13	Bricklayers	7	5	1	1	Modeller	....	1	....
12	Stationary Engineers	....	12	....	1	Mechanical Engineer	....	1	....
11	Architectural Students	....	....	....	1	Marine Engineer	....	1	....
10	Draughtsmen	2	8	....	1	Lithographer	1	....	....
9	Telegraph Linemen	....	9	....	1	Safemaker	....	1	....
9	Druggists	5	4	....	1	Decorator	....	1	....
9	Watchmakers	5	4	....	1	Lockmaker	....	1	....
8	Laborers	....	....	....	1	Hatmaker	1	....	....
8	Bookkeepers	....	....	....	1	Trunkmaker	....	1	....
8	Engravers	5	3	....	1	Wireworker	1	....	....
8	Tinsmiths	3	5	....	1	Sign Painter	....	1	....
7	Brassworkers	2	5	....	1	Furrier	....	1	....
7	Shippers	....	....	....	1	Gardener	....	1	....
7	Patternmakers	2	5	....	1	Dyer	....	1	....
7	Crayon makers	....	7	....	1	Sawyer	....	1	....
6	Tailors	4	2	....	1	Window Shade Maker	....	1	....
6	Jewellers	4	1	1	1	Embroiderer	....	1	....
2	Woodcarvers	....	2	....	6	Stonecutters	2	4	....

Number and Occupations of Pupils Attending the Technical School, Session 1893-4.—*Continued*,

No. of each.	Occupation.	Apprentices.	Journeymen.	Employers.	No. of each.	Occupation.	Apprentices.	Journeymen.	Employers.
5	Surveyors	....	....	....	1	Brickmaker	....	1	....
5	Stenographers	....	....	....	1	Organ Reed Maker	1	....	....
5	Salesmen	....	....	....	1	Stationer	....	....	1
5	Steamfitters	1	4	....	1	Envelopecutter	....	1	....
5	Painters	....	5	....	1	Sailor	....	....	....
4	Public School Teachers	....	....	....	1	Accountant	....	1	....
4	Pressmen	....	4	....	1	Milk Dealer	....	....	....
3	Commercial Travellers	....	....	....	1	Photo-Mount Maker	....	1	....
3	Shoecutters	....	3	....	1	Butcher	....	....	....
3	Upholsterers	1	2	..	1	Oil Compounder	....	1	....
3	Boilermakers	..	3	....	1	Optician	1	....	....
3	Bakers	1	2	....	1	Furniture Polisher	....	1	....
3	Musical Instrument Makers	1	2	....	1	Electroplater	....	1	....
3	Teamsters	....	....	....	1	Telephone Inspector	....	....	....
3	Pianomakers	1	2	..	1	Spectacle Maker	....	1	....
2	Shoemakers	....	2	....	1	Foreman G.T.R	....	....	....
2	Photographers	....	2	..	1	Foreman Wilson Scale Works	....	....	....
2	Hatters	2	....	....	1	Glass Beveller	....	1	....
2	Moulders	....	2	....	1	Die Sinker	1	....	....
2	Tobacconists	....	....	....	1	Sewing Machine Adjuster	....	1	....
2	Telephone Operators	....	2	....	1	Florist	....	....	1
2	Telegraph Operators	....	2	....	1	Gunsmith	....	1	....
2	Piano Keyboard Makers	....	2	....	1	Mechanical Asst. Observatory	....	....	....
2	Blacksmiths	1	1	....	31	Occupations not given	....	....	....
1	Real Estate Agent	....	....	....					
					631				

Ages of Pupils Attending the Toronto Technical School, Session 1893-4.

Number.	Age.	Number.	Age.	Number.	Age.	Number.	Age.	Number.	Age.	Number.	Age.
4	12	77	18	16	24	12	30	7	36	4	42
6	13	57	19	22	25	5	31	3	37	1	44
6	14	52	20	14	26	8	32	1	38	2	45
6	15	37	21	9	27	8	33	4	39	2	51
5	16	24	22	13	28	7	34	2	40	1	55
3	17	23	23	14	29	4	35	2	41		

Ages not given, 11. Total, 631.

As may be observed by a perusal of the statement which follows, although a teacher nd been added to the staff, the rent increased by $200, as well as the large increases of ependiture on capital account rendered necessary, the total outlay was kept within 16 ats of the total sum under the control of the Board:

Financial Statement of Technical School Board, 1893-4, as Certified to by City Auditors.

Receipts.

Balance from 1892-3	$ 667 05
By appropriation from City Council	7,450 00
Interest on Deposit in Imperial Bank	27 85
	$8,144 90

Expenditure.

On Capital Account,—		
Mechanics	$ 45 95	
Drafting Rooms	110 54	
Chemistry, Sr. and Jr., Hydrost'cs and Heat	921 17	
Sound and Light, Electricity	440 94	
Chemical Laboratory	437 72	
		$1,956 31
On Maintenance Account,—		
Salaries	$4,118 64	
Rent	500 00	
Fuel, Gas and Water	541 77	
Caretaker's Supplies	53 14	
Maintenance of Classes	310 23	
		$5,523 78
		7,480 09
Balance		664 81
		$8,144 90
Against the above balance liabilities have been incurred amounting to		664 97

Toronto, January 31st, 1894.

STATEMENT.

The Board of the Toronto Technical School respectfully submits for the information of the City Council of the City of Toronto, the following statement of subjects taught and the average attendance of pupils at classes, for the periods mentioned, viz. :

	Part term 1892.	1892-3.	Oct. 1893.
Arithmetic	60	35	130
Algebra (Jr.)	44	31	50
" (Sr.)	..	..	20
Trigonometry	26	11	15
Euclid	..	9	35
Chemistry (Jr.)	50	40	75
" (Sr.)	..	..	20
" Practical	..	..	20
Hydrostatics and Heat	50	38	50
Sound and Light	..	..	35
Electricity (Jr.)	..	41	100
" (Sr.)	(To commence January next.)		
Mechanics (Sr.)	17	9	15
" (Jr.)	..	12	50
Practical Geometry	75	40	70
Descriptive Geometry (Jr.)	65	27	65
" " (Sr.)	..	..	15
At Work in Drafting Room	16	24	65
Number who took Lockers in Drafting Room	79	95	135
Total number in attendance on Nov. 7th, 1893	299	305	516

NOTE —The falling off in the attendance at the classes in 1892-3 compared with the number in attendance, is accounted for by the fact that during the previous term many students took more subjects than they could properly attend to—which was not the case last year.

Registered attendance for the two weeks ending November 3rd 1893:

Monday,	Oct. 23—337	Oct. 30—377
Tuesday,	" 24—211	" 31—233
Wednesday,	" 25—225	Nov. 1—182
Thursday,	" 26—300	" 2—338
Friday,*	" 27—166	" 3—122
Total for week..	1,239	1,252

Total number enrolled on Nov. 7th, instant, 546 (since increased considerably.)

All respectfully submitted,

JOHN INGLIS, Chairman.
A. G. HORWOOD, Secretary.

Toronto, Nov. 20, 1893.

*NOTE.—The classes held on Friday night are advanced classes, which accounts for the attendance being smaller on that night.

PETITIONS.

To the Mayor and Corporation of the City of Toronto in Council:

The Petition of the Board of the Toronto Technical School respectfully sets forth:

That the said Technical School was established by By-law of the City Council of the City of Toronto in the latter part of 1891;

That the sum of $6,000, based on an anticipated attendance of 150 pupils, was appropriated for its equipment and maintenance;

That the free use of St. Lawrence Hall was granted for said school, but that the same was found totally unsuitable for the purpose;

That the building known as the old Wycliffe College, on West College street (opposite the head of McCaul street) had, as a consequence, to be rented for the purposes of said School;

That the School began its work with more than the anticipated number of pupils; The teaching staff at the commencement was four, since increased to seven;

That the registered attendance in the term ending December, 1892, was 299, and in the term ending before the summer holidays, 1893, the number had increased to 305, while in the present term (commencing on Oct. 1st ultimo) the registered number aggregates in the close neighborhood of 600 pupils;

That a statement is hereunto appended, for the information of your body, showing the subjects taught in the said Technical School, the number of pupils receiving instruction in each subject and the registered number in attendance on each school night, for the two weeks ending November 30th, 1893;

That by reason of the greatly increased number of pupils in attendance and continuing to seek admission, there is urgent necessity for increased accommodation, and

Your Petitioners therefore respectfully pray your Honorable Body to provide such increased and permanent accommodation as may seem requisite and as will enable the Board of said School to provide for and meet the demands being made upon it in the matter of technical education.

As in duty bound your petitioners will ever pray.

JOHN INGLIS, Chairman.
A. G. HORWOOD, Secretary.

Toronto, Nov. 20, 1893.

THE SCHOOL OF MINING AND AGRICULTURE.

"The value of technical education in all departments of manufacturing or productive industry has long been recognized, and in the keen competition engendered by the conditions of modern life, he who is best equipped with a knowledge of the principles and details of his business will, other things being equal, bear the palm.

"It was once the prevailing idea that actual every-day work was the only kind of education worth anything in the way of imparting a genuine knowledge of any business. It is doubtless true that experience gained in this way is the best education, but there are many callings in which it is in the highest degree advantageous to the student to begin his career by laying down a foundation of technical instruction, leaving the practical work of his business to follow in its proper order.

"Particularly is this the case with the man who intends to follow mining. In most countries where that country has got beyond the experimental stage, the demand for skilled and educated labor to conduct and superintend the winning and refining of ores has led to the establishment of schools of one kind or other where instruction in the various branches of mining and metallurgy may be obtained."—*First Report of the (Ontario Bureau of Mines, 1891.*

The School of Mining and Agriculture, located at the city of Kingston, in the county of Frontenac, was incorporated by Legislative enactment in 1893. It began its educational functions January 9th, 1894. The objects of the school are "to give a complete scientific education of both a theoretical and a practical character to young men studying for metallurgists or mining engineers; to give practical instruction to prospectors, mine foremen, and others interested in the discovery and winning of minerals; to lead prospecting excursions of the students as well as of those more directly interested in the development of mineral lands; and to provide theoretical and practical instruction in subjects pertaining to modern agriculture, such as dairying, veterinary science, and the chemistry, botany and zoology of the farm."

Registration.—All students are required to register at the beginning of each session.

Occasional Students.—Unmatriculated students may take any classes and examinations that they wish, as it is desired to give opportunities to persons who do not intend to follow engineering as a profession to receive the benefit of courses likely to be useful in common life.

Matriculation.—Candidates for a degree must pass the Matriculation examination before being admitted to examination on the work of the course. Matriculation consists of the usual Matriculation examination for Ontario in the subjects of (1) English, (2) Mathematics, (3) Chemistry, (4) Physics, (5) Latin, or French, or German. The details of this examination may be found in the Calendars of Ontario Universities. Departmental certificates of matriculation are accepted. Other matriculation examinations will be accepted so far as they are equivalent. Candidates who have made at least fifty per cent. on the honor papers in any of the matriculation subjects are not required to take the junior class in that subject.

Degree.—The degree of Mining Engineer (M.E.) will be conferred on those who take the course specified hereafter and pass the required examination. Examinations of other schools will be accepted *pro tanto.*

Fees.—Registration, Class and Laboratory fees must be paid annually on or before October 16th.

Registration	$ 1 00
For the Course in Mining, first year	40 00
" " second year	50 00
" " third year	55 00
" " fourth year	55 00
Any full Courses of Lectures taken singly	12 00
Any Laboratory Course taken singly	20 00
Analytical Chemistry (Medical)	12 00
Specialists' Practical Course in Qualitative Analysis, Blowpiping and Mineralogy	10 00
Elementary Mineralogy and Blowpiping	3 00
Graduation Fee	20 00
Annual Examination Fee	3 00

Course of Study.—The course extends over four years and includes the following subjects :

Junior English, or Junior French, or Junior German, or Junior Latin, Junior Mathematics, Modern Geometry, Higher Algebra, Solid Geometry, Plane Co ordinate Geometry (1st course), Plane and Spherical Trigonometry, Differential and Integral Calculus (1st course), Junior and Senior Physics, Optics, Junior and Senior Chemistry (with Laboratory Practice), Qualitative and Quantitative Analysis, Blowpipe Analysis, Assaying, Mineralogy, Crystallography, Geology, Petrography, Ore Deposits, Mining, Ore Dressing, Metallurgy, Drawing and Designing, Materials and Construction, Surveying, Principles of Mechanism, Astronomy and Civil Engineering (Elementary).

The following order of classes is advised :

First Year.

Junior English, or Junior French, or German, or Latin, Junior Mathematics, Junior Physics, Junior Chemistry, Blowpipe Analysis, Drawing.

Second Year.

Senior Physics, Modern Geometry, Solid Geometry, Plane and Spherical Trigonometry, Senior Chemistry, Qualitative Analysis, Mineralogy II., Crystallography, Drawing and Designing.

Third Year.

Co-ordinate Geometry, Higher Algebra, Calculus, Optics, Astronomy, Geology, Petrography, Mineralogy III., Qualitative Analysis, Simple Quantitative Analysis, Materials and Construction, Mining Engineering.

Fourth Year.

Geology, Ore Deposits, Assaying, Mining, Ore Dressing, Metallurgy, Mechanism, Engineering, Surveying, Quantitative Analysis.

Subjects of Study.—The courses in English, French, German, Latin, Junior Mathematics, and Junior Physics are to be followed as found in Queen's University Calendar. In addition to the class on Senior Physics, students will be examined on :

Dupuis' Geometrical Optics, and Lloyd's Wave Theory of Light.

ADVANCED CLASSES IN MATHEMATICS.

Synthetic Modern Geometry. Mondays at 4 p.m. Dupuis' Synthetic Geometry, Pts. III., IV., V.

Higher Algebra, including Elementary Determinants. Tuesdays at 4 p.m. Hall & Knight's Higher Algebra.

Synthetic Solid Geometry. Thursdays at 4 p.m.

Plane Co-ordinate Geometry. Mondays at 11 a.m. C. Smith's Conics.

Differential and Integral Calculus. Thursdays at 11 a.m. Edward's Differential Calculus.

Trigonometry, Plane and Spherical. Tuesdays at 11 a.m. Lock's Trigonometries, Elementary and Higher.

Chemistry.

Professor—William L. Goodwin, D.Sc., Edin.
Demonstrators—T. L. Walker, M.A., and I. Wood, M.A., M.D.

Junior.

Chemical Species, Crystals and Crystallization, Chemical Change, Laws of Combination, Relations of Heat to Chemical Changes, Notation, Equations, Nomenclature, Volume Relations of Gases in Chemical Change, Volume Formulas, The Atomic Theory, Descriptive Chemistry of the more common elements and compounds, Electrolysis, Spectrum Analysis, Laboratory Practice.

Books—

Goodwin's Chemistry (Henderson & Co., Kingston).
Mixter's Elementary Chemistry (Wiley & Sons).
Remsen's Inorganic Chemistry (Advanced Course).

Geology.

Lecturer—Willet G. Miller, B. A.

Third Year.

Lithological Geology and Petrography, Classification of Rocks.

Dynamical Geology.

Outline of the Geological History of the Globe, with special reference to the formations found in Canada.

Physical Geography, Geology and Palæontology.

Examination and Determination of Rocks and Fossils.

Method of preparing rock sections for the microscope, and examination of prepared sections.

Books for reference—

Page's or Geikie's Physical Geography.
Lyell's Principles of Geology.
Dana's Manual of Geology.

Fourth Year.

Examination of specimens of Rocks, Minerals, etc.
A special study of Canadian Geology.
Economic minerals of Canada.
Field Geology.
Ore Deposits.

Books for reference—

Geikie's Field Geology.
Chapman's Mineralogy and Geology of Canada.
Dawson's Handbook of Canadian Geology.
Phillips' Ore Deposits.

Mineralogy.

Professor—William Nicol, M.A.

First Year.

Blowpipe Analysis—(*a*) A course of practical demonstrations to illustrate and explain reactions in studying the chemical properties of Minerals (one hour per week). (*b*) A practical class in which the experiments seen in the lectures are performed by the students (one hour per week).

Text book—

Chapman's Blowpipe Practice.

Books of reference—

Cornwall's Translation of Plattner's Manual of Qualitative and Quantitative Analysis with the Blowpipe.
Landauer's Blowpipe Analysis.

Students must supply their own blowpipe apparatus.

Second Year.

1. Systematic Mineralogy. Monday at 2 p.m.

Text book—

Bauerman's Systematic Mineralogy. (Longmans, Green & Co.)

Books for reference—

Naumann-Zirkel's Mineralogie.
Tschermak's Mineralogie.

2. Crystallography. Lectures and practical study of crystal forms by means of natural crystals, and wooden and wire models. Williams' Crystallography (Henry Holt & Co.).

3. Qualitative analysis of minerals by blowpipe and wet reagents.

Third Year.

1. Descriptive Mineralogy. Thursday at 2 p.m. Description and classification of the commonly occurring minerals, special attention being given to Canadian ores.

Text book—

Bauerman's Descriptive Mineralogy. (Longmans, Green & Co.)

Books for reference—

Chester's Catalogue of Minerals.
Chapman's Minerals and Geology of Ontario and Quebec. 3rd ed. (Copp, Clark Co.)
Dana's System of Mineralogy.
Commissioner's Report on Mineral Resources of Ontario, 1890.
Reports of Bureau of Mines, 1891-92.

2. Determinative Mineralogy. Monday at 3 p.m. Practical instruction in the determination of minerals by means of the blowpipe and by field tests, such as color, hardness, streak, etc.

Text book—

Frazer's Tables for the Determination of Minerals. 3rd ed., 1891. (J. B. Lippincott & Co., Philadelphia.)

3. Quantitative Analysis of Minerals (selected samples).

Mining Engineering and Ore Dressing.

Lecturer—Wm. Hamilton Merritt, F.G.S.

Mining—

Excavation, explosives, drilling, blasting, prospecting, shaft sinking, drifting, exploitation, underground transportation, hoisting, drainage, ventilation, lighting, accidents, mine accounts, and mine surveying.

Ore Dressing—

Physical properties upon which ore dressing operations are based.
Theory of jigging, and slime treatment.
Hand dressing.
Crushing machinery; jaw crushers, stamps, rolls, pulverizers, etc.
Sizing machinery; flat and revolving screens, tables, etc.
Sorting machinery; jigs, settlers, etc.
Typical ore dressing works.

Metallurgy.

Professor—William Nicol, M.A.

Ores, furnaces, fuel; the metallurgy of iron, steel, nickel, silver, gold, copper, lead and aluminum.

Drawing.

Lecturer—Wm. Mason.

First Year.

Drawing instruments and materials; descriptive geometry; projection; tinting and lettering; topographical drawing.

Second Year.

Machine sketching; graphical statics; designing.

Materials and Construction.

Professor—R. Carr Harris, C.E.

Applied statics; testing of materials; properties of materials; designing and execution of engineering structures.

Mechanism.

Laws of motion; linkwork, etc.; problems in applied mechanics; engineering appliances; the steam engine; steam pumps, etc.

Surveying.

Lecturer—Wm. Mason.

Plane, topographical and railroad surveying; calculations; maps and scales; topographical drawing; use and adjustment of surveying instruments; methods of surveying; field work; mine surveying.

APPENDIX.

EXTRACTS FROM THE REPORT UPON "TECHNOLOGICAL MUSEUMS AND SCIENTIFIC AND TECHNICAL INSTRUCTION AND EVENING CLASSES,"

By Archibald Liversidge, Professor of Geology and Mineralogy in the University of Sydney, and Hon. Representative Commissioner for New South Wales at the Universal Exposition, Paris, 1878.

Scientific and Higher Technical or Professional Education.

The term Technical Education is often applied indiscriminately to the special training requisite for the professional man, such as the scientific chemist, the engineer, or the architect, and to the instruction necessary to turn out an intelligent artisan or working man; the high class of special instruction required by the professional man is in reality a very widely different thing in its aims and objects to the teaching necessary for the skilled laborer. In making provision for professional scientific education it must be borne in mind that it is a much more serious and expensive matter than to provide the technical training necessary for an artisan, an engine-driver, or foreman of a workshop. This confusion may be partly due to high class professional schools being known on the Continent as technical schools—a name often given, also, to trade schools.

The requirements of the professional scientific man necessitate his passing through three successive educational stages; in the first instance he must possess a good general or liberal education, which should be followed by a course of instruction of a general scientific character, to serve as the necessary groundwork or foundation upon which his special professional education can be built; portions of the latter, or third stage of his education, can of course, in certain cases, be taken concurrently with his second or general scientific education.

The skilled artisan also requires a general education in the first instance, to be followed by elementary instruction in certain branches of science according to his future occupation, sufficient to give him an intelligent interest in the principles of his trade; and finally, his trade education itself, which may be obtained in a trade school and the workshops, or in the workshop alone. The education of the artisan has to be of an elementary nature, simply because he cannot afford the time to go beyond the preliminary stages.

Evening Classes for Scientific and Technical Instruction.

. . . The principal uses of evening classes appear to be more to render supplementary assistance in supplying the deficiencies of a student's education than to wholly provide it.

I would recommend that the session of evening classes should, as a rule, not extend over from more than six to eight of the cooler months of the year, on account of the trying nature of the summer months in many parts of the Colony, and also on account of the great advantage which is always derived from a change, the renewed vigor and energy with which the studies would be freshly taken up by the members of the classes after a recess of three or four months would more than compensate for the time thus apparently lost. An additional advantage of having a session extending over only part of the year is, although it hardly applies to students attending evening classes, that the students would be free . . . to earn something in the recess for their maintenance during the session.

The attendance at such evening classes would probably be much encouraged by offering liberal prizes for the most successful and diligent students; much good has been done at home in this way by the Science and Art Department, the Society of Arts, and of late by the various city guilds or companies, and by private benefactors.

Trade Schools.

It is admitted on all hands that it is necessary to have trade schools to supply the deficiency caused by the decay of the old apprenticeship system; hence one or more trade schools are to be met with in almost every town of importance in Austria, Belgium, France, Germany, Holland, Switzerland, etc., where it is almost the general opinion that the students in the trade schools get on much faster than the boys who are apprenticed to master workmen in the ordinary way.

Even as early as 1676, Chief Justice Hale appears to have recommended Parliament to institute an industrial school in each English parish. Locke did the same again in 1705.

Prof. Huxley, at a meeting of the Society of Arts, held early in December, 1879, gave it as his opinion that "there should be established in the neighborhood of all the great centres of industry, schools to which young boys, who are learning certain handicrafts, could resort in order to receive instructions, which should qualify them to work skilfully and intelligently at their trade."

By Technical Education in England is usually understood that instruction which is necessary, and is especially intended to assist in training persons for some particular industry, trade, handicraft or art. Technical Education, however, should not be understood to consist solely of instruction in the handicrafts or arts, but rather the education necessary to enable a boy to become an intelligent workman,—one who can see the principles underlying the methods of work,—one who can give a reason for doing anything in a certain way, and does not blindly follow a certain rule he was so taught; in fact, he should know something of the science of his art, for every art is based upon certain scientific principles. The practice of but very few arts can be taught except in the workshop, but the principles of science of most arts can be taught either before the young artisan enters the workshop as an apprentice or during the period of his apprenticeship.

In fact, no system of technical instruction or class teaching can supersede, render unnecessary or replace the training of "eye and hand" acquired by actual work in the workshop. Even in the case of certain professional subjects, which it is generally thought can be thoroughly taught at a college or school, such as, for instance, the arts of medicine, surgery and certain selected portions of chemistry, like analysis and assaying, or the arts of sculpture, painting, etc., which, it is true can be fairly well taught up to a certain point, many years of subsequent practice are requisite before the student can take his stand before the world as a fully qualified and competent professional man.

Again, Prof. Huxley, in speaking upon Trade Education, says: "The kind of education or training desirable for anyone wishing to learn a handicraft would consist of, firstly, a good elementary education, *i. e.*, that besides reading, writing, etc., the aspirant should be so trained as to have had his understanding fully awakened, so that he should take a real interest in his adopted pursuit; secondly, he should have some acquaintance with the elements of physical science, and it would be eminently desirable that he should have some knowledge of drawing, more or less; and in order that he might know what other countries were doing in his particular craft, and to get at valuable sources of information, which would otherwise be closed to him, he should know something of one or two languages besides his own; and, above all, should not have gone through too much preparation for examinations, which frequently tends to destroy the vigor and elasticity of the mind if carried to excess.

"Technical Education may be regarded, not as the teaching of technicalities, but as the sort of training best fitted to enable the pupil to learn them for himself; any measure of Technical Education which tended to delay the period at which a boy entered on the business of his trade, by an undue prolongation of his school life, would be impracticable

both from the employer's and the workman's point of view. The means for securing this end are greatly facilitated by the improved system of general education; but although elementary science is recognized in the schools, yet too little attention is paid to it, and it is to be regretted that the science teaching is scattered and unsystematic, and not so practical and experimental as it should be, which, though involving trouble and expense, is yet very necessary."

. . . . . .

Professor Lyon Playfair, in a lecture delivered at Edinburgh, says: "The true education of a laborer is to make him an intelligent being, not a mere dexterous manipulator, so that he may have the moral dignity and intellectual force derived from a thorough understanding of the principles of the work in which he is engaged. Instruction in manipulative skill is no education at all, and, such as it is, belongs to the workshop and not to the school. They may, it is true, be often combined with mutual advantage, as is the half time system of factories and union schools; or in the way it is done in Scotch universities, by winter study and summer work."

"Again," he continues, "the instruction given to the workingman ought, in our opinion, to be such as will raise his intellectual and moral level, facilitates the practice of his trade, make him more skilled in his craft, increase his power of production, and consequently his own means and the common weal, by gradually suppressing the ignorance and vice which are the cause of so much misery and the ruin of families. In addition to the subjects taught in elementary primary schools, we think technical education ought to comprise—man's duty to God, his fellow-creatures and himself; the study and recitation of select passages in prose and verse: caligraphy; the rules of French grammar and parsing; complete practical arithmetic; the elements of geometry; the elements of applied physics; industrial chemistry; industrial mechanics; linear drawing applied to ornament, machines and naval constructions; the rudiments of sanitary science; the elements of history; the English language; the elements of geography and gymnastics.

"For those who desire to become foremen, heads of workshops, managers of factories and engineers, the preparatory technical instruction must have the same basis as for the workman, but be far more extended, so far as to enable them to enter a school of arts or trades . . . which for the working classes may be regarded as the schools of application, just as the French Schools of Bridges and Roads, the Schools of Naval Engineers, etc., are for the upper classes."

Without doubt all artizans, and skilled laborers and workers in wood, stone and metal, as carpenters, joiners, cabinetmakers, masons, smiths, fitters and others, would profit very much indeed by instructions in the elements of drawing, design, geometry, and the rudiments of science in addition to the ordinary school education which they receive. They should all be able to calculate the area of a circle, to construct any give polygon or angle, and to perform other simple operations of the kind constantly cropping up in their daily work, but which are too often only guessed at or roughly estimated by rule of thumb, often to the great loss of their own time and the inexcusable waste of their employer's material.

The French schools for apprentices at Paris, Havre and Douai are intended to give this instruction to boys at the same time that they are trained to become carpenters, turners, cabinetmakers, pattern-makers, smiths, fitters, locksmiths, etc. The boys are admitted at 13, but must have obtained the certificate in elementary education. The majority leave at 16 or 17 years of age.

. . . . . .

Elementary science should, however, be taught to the older children in primary schools, as recommended by the Royal Commission on Scientific Instruction and the London School Board.

. . . . . .

The subjects of technical instruction and the training of artisans are still receiving much attention and earnest consideration at Home. Inquiries continue to be made on the continent and elsewhere by the English government, and we may expect to shortly receive additional information upon the questions, and later reports concerning the working of the systems now under trial.

. . . . . .

Professor Rankine, F. R. S, when examined by the Royal Commission on Scientific Instruction, on the subject of "Evening Classes for Scientific and Technical Instruction," gave extremely valuable evidence upon this matter, and his experience seems to show that too much must not be expected from those who can only find time for study after a fatiguing day's work.

The principal uses of evening classes appear to be more to render supplementary assistance in supplying the deficiencies of a student's education than to wholly provide it.

I would recommend that the session of evening classes should, as a rule, not extend over from more than six to eight of the cooler months of the year on account of the trying nature of the summer months, ... and also on account of the great advantage which is always derived from a change; the renewed vigor and energy with which the studies would be freshly taken up by the members of the classes, after a recess of three or four months, would more than compensatefor the time thus apparently lost.

England.

King's College, London.

This College was founded in 1828, and is under the patronage of H. M. the Queen. A very large number of evening classes are held at this College. There are some thirty-five courses of lectures given by the College Professors and Lecturers; the instruction is of a high class character, and includes almost every branch of higher education. The course includes Carpentry, Turning, Ironwork, Smith's work and Casting in brass and iron. The workshops are under a Superintendent and there are under him skilled workmen in each department. The hours of attendance are two and a half hours on two evenings in each week; the fee is £2, 2s. per term of about 12 weeks, payable in advance. Students in the Evening Department, in common with the day students, are entitled to receive the Diploma of Associate of King's College conditionally upon fulfilling the regulations and passing the necessary examinations.

The Birmingham and Midland Institute.

This is a combination of several institutions, that is, as far as its purpose is concerned, it is the Birkbeck Institution for Birmingham; there are (1880) 2,786 students in the industrial department, mostly artisans, and others engaged during the day, including those taught in the six branch classes; there is also a Summer Field Class, as well as classes in Shorthand and the Theory of Music. There are six offshoots or branch institutions for evening classes, etc., in different parts of Birmingham.

The Liverpool School of Science.

This Institution was founded in October, 1861, chiefly through the exertions of Sir William Brown, who had, in 1857, given the Free Public Library and Museum to Liverpool. . . . The subjects taught include Practical, Plane and Solid Geometry (elementary and advanced), Machine Construction and Drawing (elementary and advanced), Mathematics in all stages, Theoretical and Applied Mechanics, Acoustics, Light and Heat, Magnetism and Electricity, Inorganic Chemistry (elementary and advanced), Geology (elementary and advanced), Mineralogy, Animal Physiology, General Biology, Steam and Drawing. There is besides an Art Class for Freehand and Practical Geometry and Model and Perspective.

*The Birkbeck Institution.**

This institution has an influential committee and distinguished body of examiners and teachers in all branches of education; it was the first of the kind established in London, and it has been the means of calling into existence more than 1,000 similar institutions in Great Britain and her colonies. . . . . Its courses include all the subjects usually taught even in places of greater pretensions. . . . The fees are very low, ranging from 1s. to 10s. 6d. for the course, in addition to an annual subscription of a few shillings. Special attention is paid to preparing candidates for the degree examinations of the London University. Lectures are delivered weekly; the classes are held in the evening, from about 5 o'clock till 9 o'clock p.m., and the time devoted to each subject is in most cases an hour.

The library, containing about 8,000 volumes, is open from 10 a.m. to 9.30 p.m., except on Saturdays, when it opens at 2 and closes at 6 p m.; there is a reading room supplied with the ordinary daily and weekly periodicals, and a magazine room and study, where members have access to all standard, literary, scientific and philosophical magazines. The course of instruction comprises ten departments, and some of these subjects are subdivided into two or three classes, and each class for every subject of the division has one hour per week devoted to it. Fees, 3s. to 3s. 6d. per course per term.

The City of London College.

This is very similar to the Birkbeck Institute. Evening classes are held, which are chiefly intended for clerks and others engaged during the daytime. Special attention is paid to Technical Drawing and Machine and Building Construction. The fees are very low, being 16s. 6d. per session of three terms for any one class. This also admits to the reading rooms, coffee room, concerts, lectures, entertainments, divinity class and debating society. The curriculum of instruction comprises in all thirty-six courses, which are conducted by twenty-six professors.

Workingmen's College, Bloomsbury.

This college was founded in 1854 by the late Mr. F. D. Maurice. The students are for the most part workingmen; the teachers are usually members of the universities and of the different professions, or those who have been students at the college. It provides instruction at the smallest possible cost, the average of the fees being about 4s. 6d., or ranging from 2s. 6d. to 6s. per term. The instructors for the most part give their services gratuitously.

The Polytechnic College.

This institution, which is in connection with the Royal Polytechnic, London, is of a similar character to the Birkbeck Institution; special attention is paid to the Science department. The classes are all held in the evening between the hours of 7 and 10 p.m.

AUSTRIA.

In Austria the Real-Schule buildings are made use of also for the Gewerbe-Schulen, or trade schools; they are set apart for the former purposes during the daytime, and are utilized for the trade schools in the evenings from 6.30 to 9.30, and on Sunday mornings from 8 to 12. Admission to the classes of these Gewerbe-Schulen is free.

Vienna is divided into wards, and there is an upper or lower Real-Schule in each of them. One of the largest of these is situated in the Wieden ward; it is attended by over 300 evening and 400 day students.

The evening schools in Vienna owe much of their success to the fact that the apprentice laws render it compulsory for every apprentice to attend an evening school for one year at least during his term of apprenticeship.

*Founded by Dr. Birkbeck in Chancery Lane, London, in 1823.

In 1877 Austria had six technical high schools, with an attendance of 3,257 students. At that time the Vienna Technological Cabinet included a collection of trade tools with 11,266 examples, a collection of manufactured articles with 75,856 examples, and a raw material collection with 5,786 examples. The collection for the theoretical mechanics had 627 examples, and the physical cabinet and the collection for materials 1,100 and 4,000 respectively. There are four chemical laboratories—two for general and analytical chemistry, one for organic chemical technology, and one for inorganic technology. The chair of higher geodesy and spherical astronomy has an observatory.

The Vienna Weaving School.

The tuition in this school is in two departments: (*a*) the weaving school, (*b*) the school for drawing as applied to manufacturing. The scholar can, at his own discretion, attend either one or both classes. Instruction is given in the former three days a week from 8 to 12 a.m., and in the latter on the other three week days at the same hours. In both departments assistants and apprentices are taught on Sundays from 8 to 12 a.m., and on Mondays from 6 to 9 p.m. All instruction is free, but scholars must provide their own patterns, materials, etc. They must have passed their fourteenth year, and be able to show good school testimonials.

Treadle Weaving. Knowledge of the loom, its several separate parts and elements, the tools and materials used in weaving—various readings, the connection of the healds with the treadles, the theory of the primary weaves, as taffeta, croiset, atlas, and afterwards the weaves of many other cloths, with a description of the heald and treadle finings as a preparation for the following analyses:

The analyses of woven stuffs, more especially of plain, striped and checked patterns; small woven patterns made in the lace bobbin machines, descriptions of these, with instructions in reproducing the designs on paper; weaving of table linens on shafts; piqués on shafts; right-hand twills and double cloths on shafts; backed and double cloths; velvets and similar cloths; gauze.

The scholar will in this course also be made familiar with the jacquard, with the various forms of harness, with the calculation of the design paper required for each cloth, with the reading of it, etc.

Jacquard Weaving. For instance, damasks—as atlas, furniture cloths and damask table linen; over-shot or lanced goods, as shawls, gobelins, etc.; piqués, double and backed cloths; tapestry and velvets; gauze and ribbons.

The instruction in drawing embraces: geometrical and construction drawing—rectilineal figures, curves, complicated figures of both; freehand drawing—outlines, shaded copies; drawing after plaster models—in black, shaded with light introduced, colors; drawing after flower models—introducing drawing after natural flowers in water colors, in given shades; coloring, teaching of styles, and the elements of perspective in line and color; painting of designs for special branches of industry, for industrial trades, for prints and tapestry, for embroidery in gold and silk; instruction in making patterns for all branches of textile industry. . . . . .

The Ladies' Industrial Association of Vienna is one of the best industrial schools for young women. It is divided into eleven departments, viz.: commerce, French, English, stenography, drawing, higher working school, sewing, cutting out, point lace work, telegraphy and general improvement. The fees range from £4 10s. to £1 a year, and for those who desire it, situations are found on leaving the school. Girls may either do their own work at the school or work for ladies who send work to the school; in either case they receive payment. The subscriptions to meet the loss on the school are easily obtained.

The "Frauen Erwerb Verein" of Prague has two schools. In one are the schools for commerce, dress-making, telegraphy, and educating the teachers for the kindergarten system; in the other, machine knitting and cutting out, and sewing are taught. In the two schools there are over 200 pupils, and they are supported by subscriptions from the State, the province of Bohemia and the town of Prague.

Belgium.

In Belgium every commune must have at least one public elementary school, unless the means of instruction for all the children be provided for by private, endowed or denominational schools.

The primary schools must give instructions in French (or Flemish), arithmetic, writing, religion and morals. Elementary schools must be free to the poor. . . .

Technical education is provided for by institutions of three grades—the universities give the higher instruction. . . . . .

Primary technical instruction is given in the industrial schools for workmen, of which there are many. For lace-making alone there were in 1872 about 590 schools. There are also schools for such trades as glove-making and cabinetmaking.

The apprentice schools are chiefly managed by the manufacturers of the different towns, who send work to be done in them.

The Ghent Technical School has some 800 students. The following is the programme laid down for the three years' course in the weaving department: first year—mathematics, natural philosophy, theoretical course of weaving, designing, accountantship; second year—mechanics, chemistry, practical weaving, machine drawing.

The looms are in a shed specially built for them. They are principally used for the manufacture of linen. The school possesses a number of models of steam engines, furnaces, gasometers, etc., as illustrations for lectures. The chemistry department is also very efficient. All instruction is free.

Industrial School, Verviers. Verviers and the district around it are important for the manufacture of broadcloth. Instruction is given in the evening, and to qualify for admission the students, who number about 359, must be more than 12 years of age, write correctly, and know the first four rules of arithmetic. There is a three years' course in the section for mechanics, chemistry and industrial design, which is divided into two branches—one for chemists and dyers, the second for machine constructors. The first branch of instruction is algebra, geometry, ornamental and mechanical designing, elements of mechanics and construction of buildings, etc., used for washing and dyeing wool. The programme of the second branch includes algebra, geometry, ornamental and mechanical designing, natural philosophy, as especially applicable to the heating of boilers, furnaces, drying houses, etc., chemistry as applied to the industries of the town, washing and dyeing wool, mechanics, and the construction of machines. . . . . .

At Verviers diplomas and travelling bursaries are granted. Those who attend the school three years and pass the examination at the end receive diplomas; those who pass highest in the third year and gain 75 per cent. or more of the total marks also receive gold medals. Should anyone distinguish himself sufficiently, he receives a travelling scholarship, which enables him to visit other countries and become acquainted with their industries, and on his return he has to give an account of what he has seen, and the progress of the special industries he has visited. The three diplomas granted are those of "Chemical Dyer," "Mechanical Constructor" and "Master Weaver." From 1864 to 1870, inclusive, twenty-nine diplomas of "Master Weaver" were granted.

Professional School, Brussels. This school for girls was founded in 1865. It originally opened with the following resources: Subscriptions of about £1 10s. per annum from 134 subscribers and a grant from the municipal council of £144 yearly, for which it had the right of sending 100 girls as free scholars. In 1868 the municipal authorities offered to adopt it as one of the public schools of the town, and the government agreed to subsidize it at their suggestion; it still has (in 1880) 300 subscribers, who elect from among themselves a managing committee.

The instruction is in two courses—general and special. . . . . The special course includes commercial law and English and German, industrial designing, chiefly applicable to millinery and dressmaking and the manufacture of porcelain; painting on porcelain, dressmaking, cutting out and the getting up of linen, manufacture of artificial flowers, painting on fans and various stuffs. There are now (1880) more than

300 pupils attending, and several of the neighboring communes have founded scholarships. At the end of the course these girls who pass an examination obtain certificates of proficiency, which are generally instrumental in obtaining them lucrative employment. From 1865 to 1872 the receipts increased from about £450 to about £2,360, and the expenses rose in the same period from about £436 to £1,480.

France.

The Paris Central School of Arts and Manufactures was founded in 1829 by private efforts. The school has steadily increased from 140 in the first year to 550. In 1857, the school then containing 475 students, and its income being over £4,000, the institution was handed over gratuitously to the State and important improvements were introduced; the candidates for admission were classed according to the results of an entrance examination, instead of being examined simply to ascertain whether they were fit for admission.

Since its foundation the school has granted diplomas to 4,054 engineers, of whom 552 were foreigners; and the number of students admitted is 7,266. The school has had great influence in the railway constructions of France; in 1834, a special course of lectures on railway construction was instituted—the first of its kind in Europe. Many iron founders, machine makers, farmers, manufacturers of chemical products, sugar, paper, etc., have gained their scientific knowledge from this institution.

The reputation of the Central School has led to the foundation of similar establishments elsewhere, amongst the first of which is the celebrated Polytechnic of Zurich, which has nearly 1,000 students and receives a yearly grant from the Federal Government of nearly £15,000. There are, besides, the Schools of Arts, Manufactures and Mines, at Liege, founded in 1887; the Polytechnic Schools of Dresden, Vienna, Munich, etc.; the Berlin Royal Institution of Arts and Manufactures; Russia has the Imperial Technical School of Moscow, with a capital of £400,000 and an income which, in 1887, amounted to close upon £30,000. The United States, which, in 1862, had not a single technical school, has now (1880) more than thirty, the endowment of which exceeds £2,000,000.

Industrial Institute, Lille (North of France). This Institute has three distinct divisions, viz.: The Industrial, Agricultural and Commercial Schools, and is intended to train those who intend devoting themselves to or are already engaged in any of these pursuits. The new buildings include a large number of workshops with small classrooms attached; these workshops are most completely fitted up with every requisite, and contain lathes, planes, etc., driven by a twenty horse-power engine; and the dyeing department has hot and cold water, steam dyeing troughs, furnace drying machine, etc. The weaving department is not yet in working order, but will be, when finished, equal to the rest of the school.

Then, again, there are the School of Bridges and Roads, the School of Mines, Special School of Agriculture, Paris; School for Miners, at St. Etienne (Loire); School for Foremen Miners, Douai (Nord); Schools of Arts and Trade, at Aix, Angers and Chalons-sur-Marne; School of Forestry at Nancy (Meurthe et Moselle); Schools of Agriculture at Grignon, Grand Jouan and Montpellier; School of Horticulture at Versailles; Schools of Hydrography in the principal maritime towns; Naval School at Brest; School of Marine Engineers, Cherbourg; Special Military School at St. Cyr, near Versailles; Schools of Pharmacy at Paris, Montpellier and Nancy; Schools of Medicine, Naval Schools of Medicine and Pharmacy at Brest, Toulon and Rochefort; Veterinary Schools at Alfort, Lyons and Toulouse; Schools of Law at Paris, Aix, Bordeaux, Caen, Dijon, Douai, Grenople, Lyons, Nancy, Poitiers, Rennes and Toulouse.

Germany.

In Germany there are technical schools of three grades and in addition special trade schools. In connection with the primary schools, there are the "Fortbildungs Schulen," or technical schools for improvement, in which elementary instruction is given in various branches of trade and manufacture.

Würtemburg, with her two millions of inhabitants, has 160 such institutions, including schools for special branches of trade, such as for wood, metal, ivory, textile and other industries. In the small Grand Duchy of Hesse, 3,000 pupils are annually educated, without compulsory attendance, at the "Improvement Schools"; and in Prussia and Bavaria instruction is given in numerous improvement classes, in elementary as well as special classes for architectural art, industrial, mechanical and machine drawing.

In connection with the "gymnasiums," or secondary grade literary schools, and "Real Schulen," or second grade scientific schools, there is in every large town a trade school (Gewerbe Schule) in which the instruction is of a more practical nature than in the "Real Schulen."

The Real Schulen are essentially utilitarian in aim and character, and are expressly intended to provide instruction for those who are to follow some trade or industrial occupation. They offer an education to the future merchant, artisan, etc., corresponding to that offered by the gymnasiums to those who intend to follow the liberal professions, law, medicine and theology.

The course of study is divided into six classes and usually extends over a period of nine years. In the Real Schulen special attention is paid to the modern languages, which occupy a similar position to the classical languages in the gymnasiums; every student is supposed to acquire a good knowledge of English and French.

In Germany there are about 300 Real-schools of the first order and 600 of the second grade.

The Gymnasium and the Real Schule are intended to be preparatory to the University and Polytecnicum respectively, but the students of the Gewerbe Schule usually go into business on leaving. The Gewerbe Schulen are especially for the technical and scientific instruction of working managers, foremen and tradesmen; they are provided with requisite scientific apparatus and appliances, laboratories, drawing studios, etc.

There are about ninety Gewerbe Schulen or special institutions for middle class technical and scientific instruction in Germany.

In Prussia there are 29 provincial trade schools; the High School of Science at Frankfort-on-Main; 13 schools for architects, working managers and foremen; 5 technical schools for textile industry, as at Crefeld, Mülheim, etc.; 3 schools of design, drawing, and art industry, Berlin, Cologne and Hanau.

In Saxony: The High School of Science at Chemnitz; 2 technical schools, Frankenberg and Mitweida; school for working managers and foremen at Chemnitz; 5 schools for architects, Dresden, Leipzig, Chemnitz, Zittan and Planen; 3 technical schools for textile industry, Chemnitz, Gros Schönean, Limbach; 1 school for modelling, ornamentation and designs, at Dresden.

In Bavaria: There are four schools of industry for architects, construction of machines and chemical industry (Munich, Augsburg, Nuremberg and Kaiserslautern); 2 schools for architects (Munich and Nuremberg); 2 schools for art industry (Munich and Nuremberg).

In Würtemberg: There is a school for architects, working managers and foremen at Stuttgart; one school for art industry at Stuttgart; 4 schools for textile industry (Reutlingen, Weidesheim, etc.).

In Hesse-Darmstadt: One school for architects at Darmstadt; 2 schools for art industry (Mayence and Offenbach).

In Brunswick: One school for architects at Halzminden.

In Coburg-Gotha: Three schools for architects at Coburg, Gotha and Ohrdruf.

In Hamburg: General technical schools and schools for architects.

In Lübeck: One technical school.

In Mecklenburg-Schwerin: One technical school at Schwerin.

In Alsace: Two technical schools (Mülhausen and Strasbourg).

Circular Letter.

The following is a synopsis of a "Circular of Lord Stanley upon Technical and Industrial Education to Her Majesty's Representatives abroad, together with their replies,"—1868 :

In the year 1867 a circular was addressed to Her Majesty's Ministers abroad, requesting them to furnish information as to Technical and Industrial Education in the several countries in which they represented the British Government. The replies contained collectively a mass of information on the subject, and the whole of them were printed in a Blue Book presented to both Houses of Parliament in the following year, 1868.

The report for the Hanse Towns gives full information regarding the Hamburg Industrial Schools, viz. : The Public Trade School, the School for Building and Architecture, the Educational Union and the Polytechnic Preparatory Institute ; particulars are also given of the Trade School at Lubeck, established 1841.

The report from Bavaria treats of the Male and Female Sunday and Holiday Schools in Munich ; the Royal District Industrial School at Passau ; the Royal District Industrial and Commercial School, and the High Technical School at Bayreuth ; the Royal Industrial School and the Higher Technical School attached to it at Hof ; a similar double school at Banburg ; the Royal Industrial School in Ausbach ; the Royal Industrial and Commercial School in Furth, Middle Franconia ; the Royal District Industrial School in Augsburg ; the Royal Industrial and Higher Technical Schools at Kempten ; similar schools in Nordlingen and Lindau ; the Royal Technical Gymnasium in Nuremberg ; the Royal District Industrial School and the Royal School of Machinery in Augsburg ; the Weaving School at Mundeberg ; the Industrial Drawing and Wood-carving School at Berechteogsden ; the Royal School of Art, as applied to trade, at Nuremberg ; the Polytechnic Society's School in Wurtzburg, and the Royal Polytechnic School at Munich. Full particulars of the most important of these schools are given, such as the number of teachers and students, fees, courses of education and general regulations.

The Prussian report, besides giving copies of the laws and organizations of various kinds of schools, particularly notices the Commercial and Industrial School at Berlin, for females, and the Berlin Workingmen's Association. The former is to give young women of the better classes a sound industrial and commercial education ; and the latter is a most useful institution, many thousands of workingmen attending it and coming from all parts of Germany to do so. Other principal Industrial Schools are the Eldena Academy for political and rural economy ; the Poppelsdarf Agricultural Academy ; the Royal Trade Institution of Berlin ; High School of Science, Frankfort ; Weaving Schools at Crefeld and Mulheim ; various plans for the improvement of Technical Education and for the organization of the Technical High Schools.

The report from Sweden gives the general tendency of the Technical or Industrial Education imparted. Among other institutions mentioned are the School of the Industrial Society of Gothenburg and the Ship-building Institution at Carlskrona, in addition to the Polytechnic School of Stockholm, the Chalmers Polytechnic School, the Schools of Mines at Falun and Filipstad, the School of Naval Architecture, and the Industrial Schools at Malmo, Norrkaping, Erebro, Boras and Eskilstuna.

From Holland there is a report on Primary and Middle Class Schools. At the date of the report not much progress had been made in the means for giving technical instruction, and the only schools of this description of much importance that are mentioned are the Agricultural Schools and the Royal Polytechnic School of Delft.

There was some difficulty about obtaining a full report from Austria, as great delay would have been experienced in procuring the necessary information from the provinces ; the British Representative, therefore, sends a general report of the scheme of education in the Province which includes Vienna.

The report from Belgium on Technical Schools, etc., is exhaustive, and deals with all the establishments of that character. They are arranged in two categories, and include, firstly, the Industrial Schools (fourteen are named), the Mines of Hainault, the Indus-

trial Museum and the Upper Commercial Institution of Antwerp; secondly, the workshops for apprentices ("Ateliers d'Apprentissage") established at Flanders, and the Melle Institution near Ghent.

There is a report distinct from that on the Technical Schools of the rest of Prussia, on the Provincial Industrial School at Danzie; it is a central college, and all the twenty-seven Provincial Industrial Schools are connected with it.

The report on Education in France is very comprehensive, and includes full information as to primary, secondary, and technical instruction in that country. The studies appointed for special schools are given in extenso, and the method of giving instruction in those schools; in addition, the report comprises various laws made for the government of the different kinds of schools. The School of Watchmaking at Cluses (Haute Savoie) is specially mentioned, as are also the Schools of Pharmacy, Law and Medicine; the Central School of Arts and Manufactures, and the Polytechnic School, both at Paris; Agricultural, Forestal and Horticultural Schools; Schools of Art, etc., etc.

The report from Switzerland is also very full. It contains particulars as to popular education; schemes for employing children in factories; various laws on Public Instruction; and makes mention of the Federal Polytechnic School; the French-Switzerland Training School for Industry, Public Works, and Private Buildings, Lausanne; the Watchmaking School at St. Imich, Canton of Berne, and the School of Design for encouraging Wood-carving at Brienz, in the same canton; the Weaving School of Frogen, Canton of Appenzell; Industrial Schools at Chaux-de-Fonds and Locle, Canton of Neufchatel; the Industrial and Commercial College at Geneva; and the Polytechnic School at Zurich.

The Norwegian report gives an account of a School of Mines at Köngsberg, of a Theoretical School for Mechanical Engineers at Carljohansvaern, connected with the naval workshops of that place. so that the students may also have practical instruction. The report includes the Law of Popular Schools in rural districts.

According to the Danish report the only school which had any pretensions to being of a technical character was the Technical Institution of Copenhagen, and even that paid little attention to purely technical instruction. An account of it is given.

The report for Spain and Biscay gives an account of the system of public instruction initiated in 1845, and including primary instruction, secondary instruction, education for the learned professions and education of a special kind. The special schools include those for Architecture, Mines, Civil Engineering; Schools of Art, Industry, Agriculture, Navigation and Commerce; Veterinary Schools and Colleges for the Deaf and Dumb.

TECHNICAL HIGH SCHOOLS.

The following abstract prepared by Mr. Henderson, British Vice-Consul at Hamburg, is made from a report by the University of Commerce in Berlin, for presentation to the Prussian Parliament:

I. Abstract of recommendations for the organization of a Technical School at Berlin.

A technical school should be a union of various schools of art and construction, each devoted to a special subject, but enjoying the advantages of co operation and mutual support. It should be presided over by a rector, elected annually. In order to carry out the object successfully the greatest importance should be attached not to the presiding but to the teaching element. Frequent change in the rectorship would prevent the tendency that might otherwise arise to give undue prominence to one special subject to the neglect of other branches. Decentralization should therefore be the rule. In Dresden the rector is appointed for life; in Munich, for three years; Karlsruhe, Darmstadt, Stuttgart and Brunswick, from one to three years. In Austria one year is the rule. The necessary attention to the business arrangements of such an institution should be secured by the appoint-

ment of a permanent Secretary, whose business aptitude should be thorough, and whose duty it would be to keep the organization in proper working order and superintend the expenditure.

II. Conference on Technical Schools in Prussia, held in Berlin, August 2, 1878.

The Prussian Government summoned a number of persons connected with the Government Technical School to confer with the Minister of Commerce upon the best method of reorganizing those institutions. The Conference recommended that they should in future be divided into two classes—the first class schools to be those intended for the training of architects, engineers and others; the second to be devoted to the education of artisans. The pupils of both classes should enter earlier than at present, and follow a course of not less than five years. The requirements of the district will indicate which class of school should be established.

The course of instruction should include two modern languages, French and English. The study of the classics would not only absorb too much time but is not necessary. The architect must study the sculpture of architecture as well as the general designs of the ancients, but does not need to have a mastery of their languages. A collection of originals or models is essential for this purpose. Drawing is not, as has been sometimes thought, a matter of secondary importance, but plays a most important part in the formation of correct ideas of taste and form, and in the education of the eye and hand. For schools of the first class there seems to be less of a demand than for those of the second. A large manufacturer, who took part in the Conference, stated that out of more than 60 persons in his designing office, not even one-third required to have passed through an academical course; for the rest a technical middle class school training was sufficient.

III. Technical Schools for the Middle and Lower Classes.

The desire that has been generally expressed for the formation of technical schools for artisans is based upon various considerations. The abolition of the examination formerly required in order to carry on business as a master, the decline of guilds, and the rapid progress of all manufacturing enterprises in consequence of the over-speculation which followed the Franco-German war, has led many thousands to change their former occupations. The result has been that many have taken up manufactures for which they have had no previous adequate training. This evil has been specially felt through the depression of trade, and the necessity for cheap and at the same time tasteful production which has been developed in consequence. The high development of French manufactures, especially in articles of luxury, of which the recent exhibition in Paris has furnished fresh proofs, has enabled that country to recover itself with amazing rapidity, and to bear with comparative ease a greatly increased burden of taxation, even at a time of great commercial dulness.

Owing to the great number of male apprentices (Berlin, with a population of 996,858, having 13,757,) it is obviously impossible to attempt compulsory technical education, and it is advisable, therefore, to establish a limited number of institutions which will afford the opportunity of improved preparation for active life to those who may desire it.

The combination of practice with theoretical instruction does not seem possible in architectural schools, which should confine themselves to Mathematics, Physics, Drawing, Correspondence and Bookkeeping. Schools for weaving ought to make those who intend to carry on that occupation familiar with the theory and practice of textile manufactures, and with the most necessary commercial knowledge. It is necessary that these institutions should place their students in a position to compete with rivals at home and abroad, and should, therefore, be furnished with proper apparatus, with designs and museums of specimens, and should give due attention to the subordinate branches of the manufacture, such as dyeing, etc.

Several schools exist in France which supply trained mechanics for the various branches of manufacture. The proposal for the establishment in 1843 of a school of this kind in the south of France was thus supported by the Government: "The combination

of practice with theory is the best means of educating men who shall be fitted to understand the requirements of manufacturing industry, and the object of the institution is to assist them in their progress and supply our large factories with a class of men qualified to superintend the operations of the organization which is destined to play such an important part in the material development of the country."

These schools turn out about 300 trained young men annually, and it is to this that, in the opinion of many French authors, the country is indebted for a great part of its prosperity. In 1850 a proposal was made for the abolition of these schools as unnecessary. This gave rise to the appointment of a committee, before whom the foremost engineers and contractors in France declared that the technical schools were of such great practical importance that had they not existed it would have been necessary to establish them. Numerous situations on the railways and large factories could not have been better filled than by men who had passed through these schools, and their abolition, should it be decided on, would inflict an injury on French manufactures which it would be difficult to overcome. At the present time a proposal is on foot to increase these schools, although each school costs about £160,000.

The principal technical schools in France are three in number, each having 300 students, who live on the premises. An entrance examination has to be passed in French, Plane Geometry, Arithmetic, Elementary Algebra, Freehand and Mechanical Drawing, as well as the production of some article in wood or iron. Only one-third of the candidates pass this ordeal. An entrance fee of 340 francs is payable for the student's uniform and the wear and tear of the apparatus, in addition to an annual payment of 600 francs for board and instruction. Nearly three-fourths of the students are able to pay for their own support. The course lasts three years. Five hours are devoted daily to scientific instruction and seven to work, nine hours being devoted to sleep. Upon entrance half of the students are set to work at lock-making, the others to model-making. At the end of six months they are drafted, according to their capacities or wishes, into the classes for smith's work, casting models, or machine making, and they remain there until they leave, with the exception that the modellers work six months of the second year in the foundry, and the machinists in the smithy. The work executed in the workshops is bought partially by the Government and partly by private individuals, who readily purchase it. The annual revenue arising therefrom is £1,600, the total expenses of each institute being about £14,400.

The health of the pupils in the school at Châlons (visited by a Commissioner from Berlin) is very good. The greatest cleanliness and discipline is preserved with military precision, advantages which can only be secured where all the pupils reside under one roof.

The schools which have awakened the greatest amount of interest lately are those intended for the sons of small manufacturers and workmen, and promise to be the surest means of removing the economic and social evils now complained of. These schools exist in several foreign countries, and require only a limited amount of general and scientific preparatory education. The principal of these is the School La Martinière at Lyons, which was lately visited by a Government Commissioner. It is endowed with a legacy producing an interest of £4,000. The building has cost altogether £40,000. Gratuitous instruction is given to 500 day and nearly 300 evening scholars. The ages of the pupils must be between 13 and 15, and the course of instruction occupies three years. The entrance examination consists of writing from dictation, and decimal fractions. The sons of the poor have the preference, and the means of the establishment are such as to afford premiums to diligent scholars. The subjects taught are Mathematics, Drawing, Physics, History, Geography, English, French and Bookkeeping, but Mathematics and Drawing receive the most attention. Five hours per week are devoted to working in wood and iron, modelling, carving and sculpture, the object being to familiarize the boys with the use of tools, the exercise of the eye and hand, and the general development of the muscular powers, while the other branches of study benefit their intellects. Great praise is given to this school by public opinion in Lyons.

Similar schools are carried on with great success in Paris, in the Boulevard de la Villette and Rue Tournefort, in which the apprentices earn five or six francs weekly. The instruction is free, and the interest taken by the pupils is so great that very few

cases of truancy occur. The school in the Rue Tournefort was opened with 17 scholars in December, 1872, and had 165 on the books in May, 1878 ; 74 have left the establishment and obtained good situations as workmen. These schools cost the town 60,000 francs (£2,400) per annum. There are workshops in connection with this school for workers in marble, compositors and printers, saddlers, carvers, watchmakers, bookbinders, glass-cutters and workers in bronze. Nine hours are spent in work and two in instruction. The number in attendance is 160, and 43 pupils left last year after completing the course. The total disbursements in 1876 were 1,055,000 francs (£42,200).

Technical schools have been established in Belgium by the municipal authorities since 1851, in which the children of the poor obtain general instruction and are taught weaving. The materials are delivered by the manufacturers in the neighborhood, and the scholars receive small, gradually increasing, weekly wages. On leaving they are able to earn their livelihood.

A technical school was established in Amsterdam in 1861. The age of the scholars must not be less than 13, and each pays about £1 per annum. The course is three years. Twenty-four hours' instruction is given in Drawing weekly, and fourteen in general and technical subjects. Of the 130 scholars, 86 were carpenters and joiners, 31 metal workers, 5 turners, 3 stone carvers, 1 engraver and 1 painter.

In Denmark and Sweden an attempt has been made to combine artistic practice with popular education, in order to awaken a taste for art, and furnish occupation for the long winter evenings among the rural population. These efforts are, however, of too recent a date to permit an opinion to be expressed on the subject of the project.

Technical schools have considerably increased in Prussia of late years. The number of schools supported or assisted by the Government was 79 at the end of 1877, with 167 teachers and 3,900 scholars, of whom 1,805 attended schools for weaving, embroidery, lace making ; 776 were workers in wood and stone, 642 pottery and glass fabrics, 409 were metal workers and 268 in various other branches.

The consideration of the whole subject shows the advantages that have been derived elsewhere from the encouragement given to artistic study, but it does not follow that it is necessary in all points to adopt plans which, however appropriate in other countries, might not be applicable to Germany.

The Royal Technical High School, Berlin.

The aim of this institution is to give the technical scientific instruction necessary to qualify students for the service of the State, and to teach the higher branches of technical knowledge connected with the various industrial occupations, and the arts and sciences more or less closely allied to such matters.

The Royal Polytechnic School of Aix-la-Chapelle.

This institution is a technical high school and was founded in 1870, for the purpose of giving a complete theoretical and practical education to architects, engineers, mechanical engineers, technical chemists, metallurgists and land surveyors, and also to teachers in technical schools.

The Polytechnic School, Carlsruhe.

The Polytechnic School at Carlsruhe is a technical high school for the cultivation and extension of technical science and art, for which purpose it was founded in January, 1865.

The Royal Polytechnic School, Dresden.

The Royal Polytechnic School at Dresden was founded in 1828, and is divided into five schools—Agriculture, Engineering, Mechanical Engineering, Technical Chemistry, and to prepare teachers for technical schools.

The Royal Mining Academy, Freiberg.

The aim of this institution is to give a complete education in the Mining and Metallurgical sciences, in a three or four years' course.

The Technical High School, Munich.

The Bavarian Technical High School, which is housed in a palatial building purposely erected for it, is in all respects equal to a University in organization and standing. It is divided into the following sections: General section, School of Engineering, School of Architecture, Mechanical Technical School, Chemical Technical School, and School of Agriculture.

There are many other technical schools in Germany; at Elberfeld a new trade school has been built at a cost of £20,000; in Barmen, one costing £15,000; while at Chemnitz a new Gewerbe Schule is nearly completed and will cost more than £80,000. At Stuttgart there is a large building school which is attended during the winter months by some 900 workmen, such as masons, engineers, joiners, etc. The Polytechnic School at Augsburg in Bavaria, has a good workshop, fitted with lathes, planing machines for metal, and provided with steam power.

Weaving School.

In nearly every instance these schools have been founded by the Government and the local authorities of the towns in which they are situated; this was the case with the schools of Grünberg, Mülheim, and Chemnitz, and with all the others above-mentioned, except that of Mulhouse, which, with the school at Barmen, does not receive State aid; the former of these two belongs to a society of manufacturers, the second to the Art and Trade Society of the town—this society has a building which cost £5,000; there are 550 members belonging to all classes, and the annual subscription is 15s.; there are classes, principally drawing, for working men, and the Institute answers very nearly to an English Mechanics' Institute. The Government have also established schools at Einbeck, in Hanover; Meerane, in West Saxony; Gross Schönau, near Zittau, in East Saxony; Heidenheim, in Würtemburg; and Passau, in Bavaria. . . . .

The system adopted (in the weaving schools) nearly always depends upon the way in which raw material is obtained, and the use made of the woven article; in Grünberg the material is bought by the school and given to the students, the patterns woven belonging to the school; at Chemnitz and Mülheim the students pay for material and keep the product; at Mulhouse cotton is bought in the raw state and spun into yarn, which is all sold, except what is needed for weaving; the woven pieces are sold, and help to pay the expenses of the school; the other schools adopt various modifications of these plans; none of the schools confine their teaching to the manufacture of one class of goods, although each devotes most attention to the material and style of cloth manufactured in its district; at Chemnitz the chief manufacture of the town is worsted, but instruction is given besides in weaving in woolen, cotton, silk and linen; at Crefeld, where silk is largely manufactured, there are also looms for woolen cloth, worsted and cotton, fancy table cloths, velvet, ribbons, figured silk and carpets; at Barmen, among other things, they manufacture woolen fringe, worsted braid, and tape.

In Germany each of the most important industries has its special technical school for students who, for want of time or some other reason, do not wish to study at the Polytechnic; the chief of these are for farming, gardening, forestry, mining, building and weaving.

Industrial Schools for Young Women.

With the exception of that of Munich, which was founded in 1873, by the municipality, all the German schools have been founded by associations of ladies, and are generally managed by them; the association in Berlin, or "Lette-Verein," is a union of

various committees, under the patronage of the Princess-Imperial of Germany. The school is in three divisions—commercial, industrial, and drawing; the subjects are much the same as at the Industrial School at Brussels, but telegraphy is added; students pay from 4s. to 15s. a month each.

In the same building is the "Victoria Charity," connected with which is a boarding house, where pupils and other young women can board at a low rate; one of the association's departments of work consists in finding employment for women in various suitable capacities. There is also a school for compositors, which is joined to the "Berlin Printing Company," which was started by several gentlemen on purpose to help the school; there is also attached a cooking school, which is largely attended by girls of the middle and upper classes, and which pays its own expenses; the loss on the other schools, etc., is made up by yearly subscriptions and by numerous donations.

The Munich Frauen Arbeits Schule has about 200 scholars, who learn hand-sewing, knitting, machine-sewing, dress-making, fancy work, drawing, arithmetic, bookkeeping, etc.; the fee is 6s. a month, but those who cannot pay are admitted free; connected with this there is a seminary for teachers of work; a higher girls' school forms part of the same building, and has 200 scholars, many of whom are free.

The girls' school at Reuttingen was first opened by a lady when it had six scholars; there are now more than 200, and it is assisted by the town and State; it has five divisions, viz: plain sewing, making dresses and clothes, machine sewing, embroidery, and fancy woolen goods; all learn drawing; the girls work either for themselves or for the schools.

There are similar schools to these at Munich (besides the one above quoted), at Caley, Stuttgart, and Biberach, and also at Darmstadt, under the patronage of Princess Alice of Hesse-Darmstadt.

THE CITY AND GUILDS OF LONDON INSTITUTE FOR THE ADVANCEMENT OF TECHNICAL EDUCATION.

(From "Engineering Education in the British Dominions," 1891).

This Institution is so important in its educational character, and so extensive in its scope, that a brief account of its origin and development will not be out of place here.

Some thirteen or fourteen years ago certain of the Livery Companies of London, recognizing the altered conditions of apprenticeship, were moved by the desire to devote a part of their funds which had been bequeathed to them, and which had accumulated in their hands, to the general improvement, by means of technical education, of the industries of the country, or of the special trades with which they severally were associated.

Many of the companies separately had previously, by means of occasional lectures, by prizes, by exhibitions, and by other agencies, endeavored to promote the interests of their several trades; but it was generally felt that these isolated efforts of individual companies, although productive of some good results, were not calculated to exert that beneficial influence on the education of the industrial classes of the country which might follow from their united action.

Accordingly, some time before the question of Technical Education was as prominently before the public as it now is, a suggestion was thrown out that the Livery Companies of London might do well to combine for the purpose of developing a general scheme of technical instruction, adapted to the requirements of all classes of persons engaged in productive industry.

This idea took practical shape at the beginning of 1877, when, at a meeting of the representatives of several of the principal companies, a committee was formed for the purpose of preparing a scheme for a national system of technical education.

The Committee placed themselves at once in communication with a number of gentlemen distinguished for their scientific ability, as well as for their knowledge of the educational wants and requirements of the industrial classes of the country, and obtained from them a set of valuable reports on the best means of giving effect to their object

These having been duly considered, the Committee prepared the outlines of a scheme which they submitted to the representatives of the several Livery Companies who had joined the Association.

This scheme provided for the foundation in London of a Central Institution for higher Technical Instruction; for the establishment of, or for assistance to, trade schools; for the conduct of examinations in technology, and for the subsidizing of other institutions in London or in the provinces, having cognate objects. All these intentions have been amply carried out, and are still in action.

This scheme was approved, and a Provisional Association of the Companies was constituted to commence proceedings. The prospects appeared favorable, and as the work was clearly likely to develop in more than one direction, and to increase in magnitude and importance, in the spring of 1880 the Institute was permanently established and registered under the title given at the head of this description; and shortly afterwards it received an important recognition in the acceptance by H. R. H. the Prince of Wales, of the Presidency. The Chairmanship of the Council was accepted by the Right Hon. the Earl of Selborne (then Lord Chancellor), and that of the Executive Committee by Sir Frederick Bramwell, F R.S., M. Inst. C.E., who has always been one of the most earnest and active promoters of the movement.

The Royal Commission, appointed in 1881, to enquire into Technical Instruction, stated in their Report, three years later, "No organization like that of the Science and Art Department, and of the City and Guilds of London Institute exists in any continental country; and the absence of such organization has been lamented by many persons with whom we came in contact."

The most important feature in this scheme was the establishment of a Central Institution in which instruction should be given with the general object of pointing out the application of different branches of science to various manufacturing industries. Specially the instruction was to be adapted to the requirements of (1) those who intended to become technical teachers; (2) those who were preparing to enter engineers' or architects' offices, or manufacturing works; and (3) those who wished to study the scientific principles underlying the particular branches of industry in which they were engaged. In 1879, the Institute acquired from Her Majesty's Commissioners of the Exhibition of 1851, the use of a valuable plot of ground, and in July, 1881, the foundation of the building was laid by the Prince of Wales. It was opened on the 25th of June, 1884, also by the Prince, who had then graciously accepted the post of President of the Institute.

The Institute has at present two teaching establishments: The one already mentioned, at South Kensington, called the *Central Institution*, and the other, called the *Technical College* in Finsbury.

Central Institution, South Kensington.

The special object of this Institution is stated to be—to give to London a college for the higher technical education, in which advanced instruction shall be provided in those kinds of knowledge which bear upon the different branches of industry, whether manufactures or arts. The main purpose of the instruction given is to point out the application of the different branches of science to various manufacturing industries.

There are three complete courses of instruction specially arranged for students who intend to enter engineering, electrical or chemical industries. Students who desire to go through a complete course, and to take the diploma of the Institute, have to pass an entrance or matriculation examination in Mathematics, Engineering, Drawing, Chemistry and Physics. A complete course of instruction occupies three years, except in the case of students who already possess knowledge enough to join the second year's course. . . . Besides regular matriculated students, persons who have knowledge enough to follow the instruction are admitted when there is room in the classes to any courses they may select, or to do work in the laboratories.

The Technical College, Finsbury.

During the time the Central Institution was building, the development of other parts of the general scheme was not suffered to remain in abeyance. In order that a commencement might be made in the provision of technical instruction for artisans and others, the committee of the Institute, in the autumn of 1879, established some courses of lectures and laboratory instruction in Physics and in Chemistry in their application to different industries.

These classes were carried on temporarily in some school rooms in the city. It was soon found that they supplied a distinct want, and that for their fuller development a specially adapted building would be necessary; and this was the origin of the Finsbury College, Leonard Street, City Road, C. E, which was opened in 1883.

The operations of this college are divided into two distinct portions—*Day Classes* for those who are able to devote one, two, or three years to systematic technical education, attended by about 185 students; and *Evening Classes* attended by about 1,100 students, for those who are engaged in industrial or commercial occupations in the day time and who desire to receive supplementary instruction in the application of science and art to the trades and manufactures in which they are concerned.

The college embraces the following departments: Mechanical Engineering and Applied Mathematics, Electrical Engineering and Applied Physics, Industrial and Technical Chemistry, Applied Art (evening only.) The courses in these departments are full and complete, consisting of lectures, class lessons, laboratory work, drawing office and workshop practice. There are five electrical laboratories, the mechanical laboratory, the drawing offices, and the pattern-shop and fitting shop have lately been enlarged. In the departments of Mechanical Engineering and Applied Mathematics, of Electrical Engineering and Applied Physics, the complete course of instruction extends over a period of two years; but students may remain longer.

The *Evening Classes* are largely attended by students from fourteen to forty years of age, the great majority of them being employed during the day in workshops or factories. There is an Evening Trades' Class Department, comprising classes in plumbing, sheet metal work, builders' quantities, brick cutting and bricklaying, carpentry and joinery, cabinet-making and practical geometry.

TECHNICAL EDUCATION.

(*Supplement to Revised Edition Chambers's Encyclopædia* (*Vol. 10*), *1882.*)

Technical education means special instruction and training for the industrial arts. This subject has received much attention of late years in consequence of comparisons drawn between the manufactures of Great Britain and those of other countries shown in the great international exhibitions held in London, Paris, Vienna and Philadelphia. Some good judges have asserted that owing to the superior training given in continental schools to young persons in the sciences specially bearing on the arts and manufactures, our neighbors are making much more rapid progress than we are. At all events, so much attention is now given to this kind of instruction abroad that we can no longer afford to run the risk of falling behind in so important a matter. The subject was taken up by the Society of Arts in London in 1853, a committee of which body reported, after due inquiry, that the want of the technical element was a serious defect in the education of the country. In 1868 a select committee of the House of Commons (Mr. Samuelson's) took much evidence, and made a report on this subject, recommending that the State aid given to the teaching of science as applied to industry should be increased. Another parliamentary inquiry in the form of a royal commission on the advancement of science took place in 1870, 1872 and 1881, at which a great mass of evidence was given by most of the prominent men of science in the country, and the commission has made several reports on the subject. This inquiry was not specially directed to what we may call the practical sciences; nevertheless much of the evidence bore upon these.

Government aid for the teaching of science to the industrial classes is now given through the Science and Art Department of the Committee of Council on Education,

which, in 1859, established a system by which payments on results are given to certified teachers, and prizes to successful pupils. The examination questions are framed by a staff of eminent scientific men, and examinations are held all over the country in May. For a number of years past the subjects have been as follows, with the exception of No. 24, which has been recently added : 1. Practical Plane and Solid Geometry ; 2. Machine Construction and Drawing ; 3. Building Construction ; 4. Naval Architecture and Drawing ; 5. Pure Mathematics ; 6 Theoretical Mechanics ; 7. Applied Mechanics ; 8. Acoustics, Light and Heat ; 9. Magnetism and Electricity ; 10. Inorganic Chemistry ; 11. Organic Chemistry ; 12. Geology ; 13. Mineralogy ; 14. Animal Physiology ; 15. Elementary Botany ; 16 and 17. Biology, including Animal and Vegetable Morphology and Physiology ; 18. Principles of Mining ; 19. Metallurgy ; 20. Navigati n ; 21. Nautical Astronomy ; 22. Steam ; 23. Physical Geography ; 24. Principles of Agriculture. Since 1878 a new subject called Physiography has taken the place of Physical Geography. The centre of examination is at South Kensington.

The success of this scheme is shown by the great increase (seen in the following table) which has taken place in the number of schools and of pupils :

	No. of Schools.	No. of Students.
1860	9	500
1866	153	6,835
1873	1,182	48,546
1880	1,391	60,854

The parliamentary grant for payment to teachers on results as respects science, to which the above table alone refers, was in the financial year 1876-77, £50,000, besides a sum of £3,500 for prizes to students, and a further sum of £2,500 for examples, books, materials, etc. About an equal sum was voted for the encouragement of art (chiefly Freehand Drawing) in night schools for artisans, and in public elementary schools. In 1879-80 the total was $56,692.

Besides the government scheme of science instruction, there are a number of private or semi private institutions where prelections of a technical nature are given. Among the most successful of the older ones are the Watt Institution (School of Arts) at Edinburgh, and Anderson's College at Glasgow. The former was established in 1821, and for more than thirty years the principal subjects taught were Mathematics, Natural Philosophy, Chemistry and Mechanical Drawing. Within the last twenty years other subjects have been added, and the total number of students is now between 1,000 and 1,500 annually. The evening courses of Anderson College, where much the same subjects are taught, are likewise very largely attended by artisans. Colleges for teaching science with special reference to the useful arts, but science of a more advanced character than can easily be taught during evening hours only, have been quite recently established in several localities, such as that of Newcastle, in connection with the University of Durham, the Yorkshire College of Science at Leeds, the Mark Firth College at Sheffield, and that founded by Sir Josiah Mason at Birmingham. Of a higher character also is the instruction given in the Royal School of Mines, London, established in 1851, and the Royal College of Science in Dublin, both government institutions. The naval and military colleges are essentially of a like nature. At Cirencester a fully equipped agricultural college was established in 1845. London has now a "City and Guilds of London Institute" for the advancement of technical education.

Technical schools have existed for a long time on the continent. Of the more recently organized ones those of Zurich and Carlsruhe are the most extensive. The former is a college and polytechnic school combined, having about five hundred students and a large staff of professors. At Carlsruhe, which is simply a polytechnic school, there are six hundred students and forty professors and lecturers. Several Polytechnic Schools of a high class exist in France, and some have lately been founded in the United States.

TECHNICAL EDUCATION.

(From Chambers's Encyclopædia (New Edition), Vol. X., 1892.)

Technical education of such a kind as best to fit the youth of the country for their work in after life, is especially necessary in the case of those on whose work depends the material welfare of the nation—artisans, foremen or employers, farmers or merchants, or commercial travellers. The public interest in the subject was aroused by the fact that in 1881, when a royal commission was appointed to consider the question, education in Britain was in this respect very much behind that provided in such countries as France, Germany and the United States of America.

The methods of technical education are necessarily different in different countries. On the continent the growth of the industrial system has accompanied or rather followed that of the technical schools. These have thus been able to render very great direct assistance to the industries; while even the injurious effect of compulsory military service has been much diminished by the inducement to higher technical study involved in the offer of a shortened period of service to students who have passed successfully through a technical school. In Britain long continued industrial supremacy has led to a well developed industrial organization in which the old opportunities for the trade education of apprentices in the workshops have largely disappeared, and their place is only now being filled by outside teaching. In Britain, moreover, the difficulty of reorganization is increased by the power of trade societies, which insist upon the letter of the apprenticeship period although the spirit is gone.

In the earlier stages of education the aims and the conditions are practically the same in all countries. The subjects of instruction and the methods of teaching must be such as will best train the intelligence, the observing and reasoning powers, and pave the way for manual dexterity. In the teaching of arithmetic every opportunity must be taken to connect figures with facts, and pupils must be accustomed to solve the simple problems of price and measurement that are of constant occurrence in daily life. English language and composition is not only valuable as a medium for literary culture, but it is technical in so far as it leads to the accurate description of an object, or process, or an event, or to the full understanding of such a description. Drawing offers a ready means of training the hand and eye, while modelling and the use of tools are valuable aids in this important relation. The accurate study of common things ought to form an essential part of the training of the pupils, who have to acquire habits of inquiry; it is also the foundation of that familiarity with properties of materials which is the basis of good work in the industries. It is this study of common things which is known as "Elementary Science" in school programmes. Throughout the elementary stage of education, it is the method as much as the matter that constitutes the claim of the work to be described as technical.

In Britain the higher stages run along two parallel lines—the one for pupils who devote their time to systematic study, and for these the teaching is carried on in day classes; the other for pupils who spend the day in work in a trade workshop, in an office, or in the field, and for whom only the evenings are available for instruction in sciences—in the principles underlying their daily work, and in languages. Considering day classes first, we find in every town of considerable size secondary schools adapted to the needs of boys from thirteen to sixteen years of age. In most of these adequate instruction is given in technical and commercial arithmetic, in mathematics, and in modern languages. In many towns there are also technical schools in which the training includes, moreover, freehand and mechanical drawing, handicraft, and the branches of science that are likely to be of most advantage to the pupils—applied mechanics, steam, electricity for engineering students; chemistry and agriculture for agricultural students, and so on. The great majority of the pupils attending these schools pass from them directly to work and continue their education by attendance at advanced evening classes, or by attending day classes for a year or two after completing an apprenticeship. Some, however, give up a year or more, when they are from sixteen to eighteen years of age, entirely to study before taking up practical work. This course is followed mainly in in-

dustries such as engineering, mechanical or electrical, chemical or textile manufactures, or agricultural, where the processes involve applications of principles which can be fully understood only by those who have studied a fairly wide range of science. The advanced classes for the instruction of such students are to a large extent of a practical kind; much of the work is done in laboratories. All colleges for such work require fully equipped chemical, physical, mechanical, and engineering laboratories, workshops for wood and iron, as well as a full complement of appliances for teaching art, the principles of agriculture, or such other departments of applied science as are required by the students in attendance. It is also desirable that the students should have facilities for continuing their language studies and for becoming familiar with bookkeeping and commercial practice. After a course of study such as is provided in a technical college of this kind the students are in a position to benefit very readily by the experience they will have in the manufactory or office or on the farm. They will have thoroughly mastered the principles, and have learned something of the modes of their application, so that they may enter upon their work with their eyes open alike to the possible causes of failure and to likely avenues of advantage.

For the benefit of students who are unable to devote their entire energy to study up to the age of eighteen, or even up to sixteen, evening classes have been established throughout the country in which the work ranges through the standards described here as secondary and advanced. It is thus possible for a lad who leaves school for a trade at the age of thirteen or fourteen to continue his studies by attending evening classes, and he will find that by diligent work for four or five years he may complete the secondary stage of his education, while three or four more will enable him to become familiar with that theoretical knowledge whose applications he has been practising all these years. This prolonged course is required only for those who would fit themselves for any promotion that may be open to them; for the less ambitious a shorter course suffices. For all, however, it is now realized that what is first wanted is a thorough grasp of elementary principles such as will enable a man to make the most of the experience and deftness he acquires in the course of his practical work.

The scope of the technical education required for each of the thousand-and-one occupations of the day is, according to the British view, limited by the accepted conclusion that the best place for a young man to learn the practice of his trade or business is in the workshop or office, as the case may be. But while this is so it is also recognized that there are many matters of general knowledge essential to the due understanding of this practice, many questions of materials, design, principles, and methods which it is nowadays quite impossible for a beginner to be instructed in during business hours, and which can be both more economically and more efficiently taken in hand by an organization specially charged with such work. A technical school may thus be complete without any teaching of a trade. In fact, in Britain, trade teaching in schools or colleges has been suggested only in the case of a few special industries, and to a certain extent in others for youths in exceptional circumstances.

On the continent of Europe and in America the provision for the technical education of workmen and foremen is not in most respects in advance of that now made in Britain. For masters and managers, however, there have been in active operation for many years numerous technical schools, supported almost entirely by the several states, housed in palatial buildings, equipped with costly and extensive laboratories and museums, and conducted by staffs of professors and teachers so numerous as to admit of the utmost subdivision of the subjects taught. Reporting in 1884, the Royal Commissioners on technical instruction declare, "that they have been much impressed with the general intelligence and technical knowledge of the masters and managers of industrial establishments on the continent. They found that these persons as a rule, possessed a sound knowledge of the sciences upon which their industry depended, and that they were familiar with every new scientific discovery of importance, and appreciated its applicability to their special industry. They adopted not only the inventions and improvements made in their own country but also those of the world at large, thanks to their knowledge of foreign languages and of the conditions of manufacture prevalent elsewhere."

The great proportion of important inventions and improvements in industrial processes that are due to British manufacturers shows that they have ever been men who secured their own technical education, when there were little or no apparent facilities for it. A complete system of technical education will widen the area from which such industrial leaders may arise. It will increase the number of those who, having the intelligence and tact essential in a foreman, have also the technical knowledge required to enable them to understand new work. And it will give workmen, in addition to the expertness which retains for them a large share of the markets of the world, the ability to enter into their work with intelligence, with pleasure and with ambition.

EVENING CONTINUATION SCHOOLS.

[From *The Labor Gazette*—Journal of the Labor Department of the Board of Trade, Great Britain, July, 1893.]

The new code for Evening Continuation Schools, which has lately been issued by the Education Department, gives greater freedom to managers in the organization of evening schools.

Among the chief changes in the regulations are the recognition for the first time of attendance of persons over twenty-one years of age, the removal of all rules compelling scholars to take the elementary subjects, the abolition of payments on individual passes and average attendance, and the substitution of grants for the school as a whole calculated on the aggregate number of hours' instruction received by the scholars. By these changes it is hoped to encourage the prolongation of evening school sessions, and the adoption of more elastic methods of teaching.

The new regulations are designed generally to meet the requirements of scholars who desire to prolong their education either in the ordinary school subjects or in some special subjects, in order to fit themselves for some industrial career, the evening schools having to meet the needs both of those who want to remedy defects in their early education, and those who desire to carry it further in the direction of secondary or technical instruction.

The code includes a great variety of syllabuses, both brief and detailed, of subjects which may be taken in evening schools, and gives great freedom in the use of suggested schemes. Among the detailed syllabuses is an outline course of instruction on the "Life and Duties of the Citizen." The course comprises three main sections: (1) Representative Government; (2) The Empire; (3) Industrial and Social Life and Duties. This last section deals, among other subjects, with associations of workers including the history and work of trade unions, co-operative societies and friendly societies, and with the relations of the State and labor. It refers to "the importance to the nation of effective, honest, intelligent management of all forms of business and industry, the disasters which result from mismanagement or fraud, the duty of the community to sympathize with every reasonable effort of the workers to improve their condition and develop their intelligence;" pointing out that while "that which injures their efficiency or lessens their hopefulness leads to national loss, and to the maintenance or increase of poverty and ignorance," a "healthy and skilful body of workers, upright and self-reliant, is a source of strength to the country."

The other detailed syllabuses include an elementary course in practical science, elementary agriculture, domestic economy, elementary physiography and vocal music.

TECHNICAL EDUCATION.

Department of Science and Art of the Committee of Council of Education.

(Report of the Science and Art Department, 1893).

In the year 1835 a Select Committee of the House of Commons, of Great Britain and Ireland, was appointed on motion of Mr. Wm. Ewart, M.P. for Liverpool "to enquire into the best means of extending a knowledge of the Arts and of the Principles of Design among the people (especially the manufacturing population) of the country." The Committee, which was re-appointed in the following session, and reported in 1836, recommended the establishment of Schools of Design. In accordance with this recommendation a proposal was made to the Treasury by the Lords of the Committee of Privy Council for Trade, dated July 11th, 1836, that a sum of £1,500 should be taken in the estimates for the establishment of a Normal School of Design with a Museum and Lectures. The Treasury having consented, the President of the Board of Trade (Mr. Poulett Thompson) called a meeting which was held on the 19th December, 1836, of certain Royal Academicians and others interested in art. These gentlemen were, early in 1837, constituted the "Council of the Government School of Design," the members being unpaid, and the Vice-President of the Board of Trade being an *ex-officio* member of the Council. On June 1st, 1837, the school opened in the rooms formerly occupied by the Royal Academy in Somerset House.

In 1841 the Government decided to assist in the formation and maintenance of schools of Design in the manufacturing districts, giving an annual grant for the training and payment of teachers, for the purchase of casts, and the preparation of models for the use of the schools.

In 1842 the Board of Trade re-constituted the Council, increasing the number of members to 24, and placed the School of Design under the management of a Director, who was to be controlled by the Council. The Parliamentary vote for "Schools of Design," which was administered by the Board of Trade, had increased in 1851-2 to £15,055; there being 17 branch schools in such centres of industry as Manchester, Birmingham, Glasgow, Leeds, and Paisley, the expenditure on which absorbed nearly one-half of the vote.

An inquiry into these schools by a select committee of the House of Commons in 1849 showed that they were not working satisfactorily. New principles of management were therefore introduced in 1852 by Mr. Labouchere, who was, at the time, President of the Board of Trade; the Council was abolished and a "Department of Practical Art" constituted instead, with a general superintendent and an art adviser.

In the speech from the Throne at the opening of Parliament in November, 1852, Her Majesty stated that "The advancement of the Fine Arts and of Practical Science will be readily recognized by you as worthy the attention of a great and enlightened nation. I have directed that a comprehensive scheme shall be laid before you, having in view the promotion of these objects, towards which I invite your aid and co-operation." A change of Ministry having shortly afterwards taken place, the scheme was carried out in the following year (1853) by the Government of Lord Aberdeen (father of the present Governor-General of Canada). The scope of the Department was enlarged; a science division was added; and the "Department of Science and Art" was erected. The title of the chief executive officer was successively changed to "Joint-Secretary" and "Inspector-General."

The Department remained under the control of the Board of Trade until the Education Department was constituted by an Order in Council of the 25th February, 1856.

From Somerset House the Department of Science and Art had, in 1852, been removed to Marlborough House, and in 1857 to South Kensington.

The Department of Science and Art was incorporated by Royal Charter dated 30th April, 1864.

The various stages of development of the system is fairly indicated by the fact that while the Parliamentary vote for 1856-7 was £64,675, the vote in 1892-3 was for the

sum of £605,954. From 1856 to 1870 the grant for buildings at South Kensington was taken with the vote for the Department of Science and Art. Since 1871 it has been taken by H. M. Office of Works.

By the Technical Instruction Act, 1889, the council of any county or borough, or any urban sanitary authority in England or Wales; and in Ireland the urban or rural authority is empowered to levy a rate to supply or aid the supply of technical or manual instruction.

The Local Taxation (Customs and Excise) Act, 1890, places at the disposal of local authorities in England, Wales and Scotland, considerable sums of money applicable to Science and Art and Technical Education.

Of the 49 English County Councils 40 are giving the whole amount receivable to Technical Education, and 8 are giving a part of it, while in the case of the remaining County Council (London) a scheme is, it is believed, in preparation.

Of the 60 English County Boroughs, 48 are devoting the whole and 11 a part, to the same purpose—one County Borough (South Shields) not having yet decided.

In Wales and Monmouthshire nearly the whole amount available is being applied to education, including intermediate education, under the Welsh Intermediate Act, 1889.

Upwards of 140 local authorities have obtained Minutes under section 8 of the Technical Instruction Act, 1889, sanctioning aid being given to instruction in subjects other than those included in the Science and Art Directory.

In Scotland, School Boards may establish and maintain Technical Schools under the provisions of the Technical Schools (Scotland) Act, 1887. In the application of the residue fund received under the Local Taxation Act to Technical Education, facilities have recently been provided by the Technical Instruction Amendment (Scotland) Act, 1892. Prior to the passing of that Act, 11 of the 33 County Councils and some of the Burgh Councils, had decided to allocate the whole of their share of the residue to Technical Education, while others were giving part, or had the matter under consideration. Doubtless further progress is being made in this direction, now that former difficulties have been removed by the new Act.

As regards Ireland, only a few of the local authorities (*e.g.*, the City Councils of Belfast, Cork, Dublin and Londonderry) are known to have levied a rate under the Technical Instruction Act, 1889; but it is believed that others are about to do so, or are considering the question. The rules under which grants may be made by the Department in aid of Technical Instruction in Ireland, have lately been modified with a view to afford further assistance to local authorities in providing such instruction. Under the amended rules the grant will be made to the school aided by the local authority, and will be equal in amount to the sum contributed by it out of the rates for instruction in subjects other than those for which the department gives aid under the Science and Art Directory.

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The Minute for the re-organization of the Schools of Design in 1852, and the formation of the Department of Practical Art, states that the three principal objects of the new Department were to be

(*a*) The promotion of elementary instruction in drawing and modelling;

(*b*) Special instruction in the knowledge and practice of ornamental art;

(*c*) The practical application of such knowledge to the improvement of manufactures.

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In 1857 the offices of the Department and the Art Training Schools were removed from Marlborough House to South Kensington as already observed. The number of students instructed in Local Schools of Art was then 12,509, and in the National Art Training School at South Kensington, 369, besides which there were 43,212 scholars of Elementary Schools taught drawing by the teachers of those schools, while the number of students in the School of Design before the establishment of the Department of Science and Art was 6,997. In this year also a regular inspection of Art Schools was organized,

so that once in the year each school was visited by an inspector who awarded Local Medals and selected the best of the students' works to be sent to London for the National Competition, in which 100 National Medallions and Prizes were awarded.

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In 1865, provision was made for the establishment of night classes for instruction in drawing as distinguished from Schools of Art. In 1876 it was decided to remove the limitation by which aid to "Night Classes" was restricted to classes held after 6 p.m., and to extend the same aid to Art classes held in any school or other institution complying with the rules of the department.

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The following figures show the extent and amount of the aid to Art instruction. In 1891 there were :

207 Schools of Art with 43 branch classes and a total of 47,316 students, the fees paid by the latter amounting to £35,993, and the payments on results to £30,664.

1,063 Art classes, with 52,715 students. The payments on the results of Art examinations in Art classes and Science classes together amounted to £13,120.

6,212 Elementary Schools, at which 1,170,340 children and pupil-teachers were taught drawing, the payments on the results of their examinations amounting to £85,459.

53 Training Colleges, with 3,692 students in training, were examined in drawing, the grants amounting to £2,151.

The whole number of persons who received instruction in Art in some form through the agency of the Department was 1,274,063.

The following table shows the numbers receiving instruction in Art during the years 1881 and 1891 compared :

——	Year.	No. of Schools.	Persons Taught.	No. of Art Examination Papers worked.	Students' works sent up.	Fees paid.	Direct payments on results.
						£	£
Schools of Art and Branches.	1881	171	31,592	†.....	197,048	35,452	10,415
	1891	250	47,316	47,501	49,025	45,993	30,664
" " "	1881	584	23,026	†.....	168,720	*.....	5,041
	1891	1,063	52,715	46,843	40,335	14,108	10,609
" " "	1881	260	*.....	.....	57,692	*.....	1,948
	1891	338	*.....	.....	43,246	*.....	2,510
" " "	1881	5,097	850,563	817,890	.....	*	31,626
	1891	6,212	1,170,340	1,042,200	.....	*	85,459
" " "	1881	48	3,501	9,761	.....	*	1,215
	1891	53	3,692	10,656	.....	*	2,151
" " "	1881	6,160	908,682	881,111	423,460	.....	56,245
	1891	7,916	1,274,063	1,147,200	132,606	.....	131,393

*No report. †53,460 for Schools of Art and Art classes taken together.

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On the 25th October, 1890, Her Majesty was pleased to direct that the title of the "Normal School of Science and Royal School of Mines," should be changed to that of "Royal College of Science, London." The Royal College is an institution to supply systematic instruction in the various branches of Physical Science to students of all classes. While it is primarily intended for the instruction of teachers and of students of the industrial classes, selected by competition in the examinations of the Science and Art

Department, other students are admitted, so far as there may be accommodation for them, on the payment of fees fixed at a scale sufficiently high to prevent undue competition with institutions which do not receive State aid. The subjects taught in the school are: Mechanics and Mathematics, Physics, Chemistry, Biology, including Zoology and Botany, Geology and Mineralogy, Agriculture, Metallurgy and Assaying, Mining, Elements of Astronomical Physics, Practical Geometry, Mechanical and Freehand Drawing. The course of instruction is arranged in such a manner as to give the students a thorough training in the general principles of Science, followed by advanced instruction in one or more special branches of Science. . . . . Three courses of evening lectures for workingmen are given during the session by the Professors and Lecturers. The charge for admission to each course of six lectures is 6d.

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In 1856 Parliament voted £10,000 for the transfer of the Department of Science and Art from Marlborough House to South Kensington, and in February, 1857, the Museum was closed for the removal of the collection thither.

The circumstances which led to the selection of the site at South Kensington are briefly as follows: Upon the close of the Exhibition of 1851 there was a surplus of £150,000. His Royal Highness, the late Prince Consort, who was President of the Royal Commission for the Exhibition, proposed that the sum should be expended in the purchase of land to be devoted to institutions for promoting Science and Art. An estate of about eighty-eight acres, which extended from Kensington Gore to Brompton, was in the market. Parliament co-operated with Her Majesty's Commissioners in its purchase, and voted altogether about £181,000 for this purpose. By gifts and purchases from the Exhibition of 1851, by gifts from the Society of Arts, etc., the Commissioners had become possessed of various collections in Science and Art. They applied in 1855 to the Government for assistance in constructing a building to contain these collections, and Parliament voted £15,000. An iron building was erected under the supervision of the late Sir William Cubitt, upon the southeastern portion of the estate which Her Majesty's Commissioners gave up to the Department. They contributed £2,000 for the building of refreshment rooms adjoining the iron building, and expended £3,000 upon internal fittings. In 1858 they repaid £121,000 of the money previously voted by Parliament, and the Government became possessed (under the Act 21 and 22 Vict., c. 36,) of 12 acres, valued at £60,000, of the southeastern portion of the estate. The buildings which had been erected, together with the old houses upon this portion of the estate, were used by the Department of Science and Art for the Museums of Education, Animal Products and Ornamental Art, the National Art Training School and the offices of the Department. A portion of the building was also assigned for the exhibition of patented inventions, under the Commissioners of Patents.

As soon as the South Kensington Museum was opened in 1857 arrangements were made for lighting it and throwing it open to the public on three evenings a week. It is now open free from 10 a.m. to 10 p.m. on three days in the week—Mondays, Tuesdays and Saturdays—and on the other three days (students' days) the public are admitted at a charge of 6d. (or by ticket 10s. yearly, 6s. half-yearly, 1s. 6d. monthly and 6d. weekly) from 10 a.m. to 4, 5 or 6 o'clock, according to the season of the year. Up to the end of 1891, 29,878,436 persons had visited it.

Manchester Technical School.

According to a Report, dated October 25, 1893, of the Technical Instruction Committee of the City Council of Manchester, the Technical School was established under the provisions of the Bill for the Promotion of Technical Instruction in England and Wales, in 1890. The City Council at a meeting in 1891 set aside the sum of £5,000 for the purposes of the school. This sum included a grant of £1,500 for the establishment of a School of Electrical Engineering in Whitworth street, which has been most successfully carried out, and has provided a means of practical instruction in Electrical Engineering equal to any facilities available outside the metropolis.

In 1892 the City Council ordered the erection of permanent school buildings at an estimated cost of £85,000, and in January, 1893, the Corporation authorized an application to the Local Government Board for power to borrow £150,000 for the erection of the new building. The Government Board intimated their approval of the proposal so far as related to the sum of £100,000, the estimated cost of the buildings, leaving the sum required for furniture, fittings and equipment until a later date.

The principal object of the Manchester Municipal Technical School is "To provide instruction in the principles of those sciences which bear directly or indirectly upon our trades and industries, and to show by experimental work how these principles may be applied to their advancement.

"The aim of the school is distinct from that of the University Colleges, inasmuch as it is designed to teach science solely with a view to its industrial and commercial applications, and not for the purpose of educating professional scientific men. It, however, offers to students of the University Colleges the opportunity of technical instruction in the industrial application of certain branches of science.

"The school also provides evening lectures and laboratory and workshop practice for apprentices, journeymen and foremen, in the scientific principles underlying their respective trades and industries, and especially aims to bring to their knowledge newly-discovered processes and methods for the purpose of improving any special trade or of introducing new branches of industry."

The staffs of the Municipal Technical School and the Municipal Art School comprise 70 persons engaged in teaching, and 48 engaged in the various technical departments and in the general administration, and 71 are in the exclusive service of the Technical Education Committee of the City Council.

The total number of students in attendance at the Technical School for the session of 1892-3 was 3,354.

The Technical Instruction Committee of the Manchester City Council offer the following Scholarships and Exhibitions, tenable at the following institutions :

The Owens College.—Four Scholarships for Day students, each of the annual value of £60 ; three Exhibitions for Evening students, each of the annual value of £10.

The Municipal Technical School —Twenty-five Scholarships for Day students, each of the annual value of £30 ; ten Exhibitions for Evening students, each of the annual value of £10.

The Municipal School of Art.—Five Scholarships for Day students, each of the annual value of £30 ; five Evening Scholarships, each of the annual value of £10.

The Manchester Grammar School.—Six Scholarships for Day students (open to boys only), each of the annual value of £25.

The candidates for the foregoing Scholarships and Exhibitions may be persons of either sex, except in regard of the Grammar School, and must be ratepayers, or children of ratepayers, whose names are inscribed upon the Citizens' Roll, or who are *bona fide* residents within the limits of the city. The orphan non-fee paying pupils of the Manchester Warehousemen and Clerks' Schools at Cheadle Hulme are also considered eligible.

The Technical Instruction Committee also controls endowments amounting to £3,700.

The total receipts of the Manchester Municipal Technical School for the year ending 31st March, 1893, were £17,928.

INTRODUCTION TO REPORT OF A VISIT TO SEVERAL CONTINENTAL AND ENGLISH TECHNICAL SCHOOLS.

By a Deputation from the Manchester Technical School, in June and July, 1891 :

"The great interest which the subject of Technical Education is now exciting throughout the country has induced the Council of the Manchester Technical School, with the approval of the Manchester Whitworth Institute, to publish the Report of the Deputation, which, on its behalf, recently visited certain Foreign and English Technical Schools and Colleges.

"It is believed that the view herein presented of the extent, character, aims, equipment, and results of many important Technical Schools, and especially of the efforts made to secure a due supply of properly-prepared students, may induce those immediately interested in and responsible for the promotion of Technical training and instruction in this country, to consider carefully the best means of applying the large sums now at the disposal of the public authorities for this purpose.

"It is to be remembered that the Continental Technical Institutions form part of an organized educational system; that they are recognized as essential to the development of the Industrial Arts, which depend for their progress upon the intelligence, knowledge and skill of those who control them; and that, in most cases, they are either supported by the State alone, or by the State and Municipality jointly."

Report

Presented to the Manchester Whitworth Institute by the Deputation appointed by the Council of the Manchester Technical School, to visit certain Technical Schools and Institutions on the Continent and in England, prior to the final adoption of Plans for the proposed new Technical School in Manchester.

. . . . . "We left Manchester on Saturday the 23rd May, 1891, and before returning home, on Saturday, the 6th June, had travelled upwards of 2,500 miles, and visited twenty-one Technical Schools and Institutions of various rank and character in . . . . . Berlin, Chemnitz, Stuttgart, Zurich, Winterthur, Muhlhausen, Crefeld and Roubaix"—Continental cities.

"Subsequently, we visited . . . . English Technical Schools and Colleges in London, Bradford and Leeds."

Summary and Conclusions.

"There is, in every Continental city we visited, abundant and striking evidence of the interest taken in the education of the people of all classes. Schools abound everywhere, and all are so organized and graded that no gap exists between the lowest communal school and the highest educational institution. The importance of scientific instruction and training is exemplified in the numerous Technical and Industrial Schools of every kind, which are accessible to the poorest, and especially to those who show capacity. So far as we could observe, there is no attempt to confine the benefits of these institutions, however advanced their character, to any particular class. They are open to the fit and capable of all ranks of industrial life. Nothing, for example, can more evidently manifest the importance attached to Technical training by the German Government than the fact that, whilst the Schools for general culture are under the supervision of the Minister of Instruction, those for Technical Teaching are placed in the hands of the Minister of Commerce. The industries of the country, and the means of educating those engaged in them in the principles which underlie their successful development, are thus closely and officially associated, and their interdependence clearly proclaimed. Measured by our standard, the fees are nominal; in some cases, like that of Roubaix (weaving and dyeing), not only are there no fees, but all materials are gratuitously supplied. In every instance there are numerous free places for those unable to pay the fees. The abundant supply of Preparatory Schools, the extended School age, ranging up to fourteen years, and the ample provision for continued evening education, have created a large body of well-prepared students, who are, therefore, much more numerous than is the case in this country. There is, hence, no difficulty in providing recruits to the higher Scientific and Technical Institutions. This has had two results: first, the supply of a large number of well-trained foremen, managers and employers; secondly, the creation of a class of competent men as teachers of Science and Technology. The forethought of Continental Governments in this respect may be compared, in several very interesting and striking directions, with our own want of provision. For instance, when this Council has required the services of a competent instructor of the chemical, dyeing

and calico-printing classes, it has been found indispensable to engage one who has been trained in a foreign Technological Institution for that important section of its work; and it is well known that many of our leading firms experience almost insuperable difficulty in finding, amongst our own countrymen, that combination of scientific with practical knowledge by which alone they can hope to compete with their Continental rivals.

"There is no pretence that the fees in any of these institutions can be made to defray their expenses, except in rare instances, and where they do so, it will be found, as in the case of Muhlhausen, that the schools are in the hands of the manufacturers and very high fees are charged. It is recognized as a duty by the Municipality and the Government that the amplest provision should be made, and no expense spared, to provide the best buildings, the most complete equipment, and the most efficient teaching. It is accepted as an axiom that industrial progress largely depends, and will more and more depend, upon scientific knowledge and artistic skill, and that the race is not so much to the strong as to the well informed and thoroughly trained. If this be true, there is little doubt that the efforts now being made by Continental nations are deserving of our most serious attention.

"We received information which shows that the danger to our industries by the better instructed managers of Continental manufacturing concerns is by no means imaginary. We are annually importing, principally from Germany and Switzerland, about three millions pounds in value of chemical manufactures—coal tar, dyes, colors and pigments, without reckoning medicinal preparations. There is no sound reason whatever, except the want of high technical training, why all these products might not be made in England, whence the greater portion of the raw material required for their manufacture is obtained. In like manner such branches of manufacture as braids, trimmings and thread gloves—formerly a considerable business here—together with other articles of trade, have been latterly carried off to the Continent, which now largely supplies these goods to our English market.

"We were especially struck with the instance of Switzerland,—a country laboring under great disavantages. It is obliged to import all its raw materials and export its manufactures under great disabilities of cost of carriage and distance from its sources of supply and sale, yet it succeeds in carrying on a considerable foreign trade, especially in fine chemicals, the creation of which is due entirely to its splendid Polytechnic School at Zurich. We were, moreover, impressed with the fact that Switzerland is engaged in a new industry,—namely, the manufacture and export of highly educated scientific men. It is recognized that the country is too small to support its increasing population; that its sons must obtain their living elsewhere than in their own land, and that to enable them to do so with success the means of obtaining the finest scientific training must accordingly be thrown open to every capable Swiss on nominal terms.

"There is no district on the Continent which can for a moment compare in industrial importance with that of which Manchester is the centre; the engineering, textile, and dyeing and printing industries here immensely transcend in extent and value those carried on in a like area in any foreign country; and yet the means we possess of training those who are to have the management of our great industrial concerns, or those amongst our working classes who may rightly aspire to positions of trust by reason of natural fitness and aptitude, would certainly not compare with the provisions made in a second rate German or Swiss manufacturing town.

"It has been said that our workshops are the finest Technical Schools in the world; but to say this and expect it to be taken as a final and sufficient reply to all demands for additional means of technical instruction, is to mistake the meaning and object of technical training. By this should properly be understood that education which enables a man to grasp, and turn to account, those scientific principles upon which our industries depend. Moreover the conditions of workshop life do not permit of that combination of theoretical study with practical instruction, which the Technical School is intended to supply.

"We do not suggest that the methods of Continental countries should be followed in all respects. The conditions of industrial life are not the same here as there, and modifications to suit our own peculiar circumstances and needs are therefore necessary. We

are convinced, however, that the advantages of industrial education there enjoyed ought to be placed within the reach of our own countrymen to an equal extent.

"At Crefeld, for example, your deputation met three young Englishmen who had been students in the spinning and weaving branch of our Technical School in Peter street, and who had come to Crefeld in order to obtain a thorough training in the spinning, weaving and dyeing of silk. These youths had been detached from home influences, and, at great expense, been sent to a foreign country to learn what ought to have been accessible to them at their own doors—surely a potent argument for the extension of our work in a new and enlarged building.

"We submit that Manchester requires the establishment of a Technical School of the highest character; that is to say, a building adequate in space and accommodation to the needs of its important engineering, building, textile, and chemical trades, together with a complete staff of competent teachers, and an ample equipment for effective practical instruction by means of laboratories, workshop appliances, apparatus, models and examples.

"The experience of foreign countries shows conclusively that such a school cannot be made self-supporting; that, on the contrary, the lower its fees, if safeguarded by suitable entrance examinations, the more service it can render to the community.

"With a view of bringing the school within the reach of the working classes, numerous competitive scholarships, extending over two or three years, are necessary, by which may be provided the outlay for fees and books, and in some measure, the loss in wages.

"An institution of such magnitude cannot, with any security for its effective working and development, be left to depend on private resources, or on uncertain means of income; and it would therefore, perhaps, be most suitably supported from public funds, such as those now available under the Technical Instruction Act, 1887, and the Customs and Excise Act, 1890. As a matter of course, adequate representation under such conditions would be provided.

"MANCHESTER, July 18, 1891."

SCIENCE, ART AND TECHNICAL SCHOOLS AND CLASSES.

(From *The Labor Gazette* (Department of Labor, Imp. Board of Trade), March, 1894):

The Calendar, History and General Summary of Regulations of the Department of Science and Art for 1894, contains, as usual, a history of the various divisions of the Department. From this it appears that the number of persons examined in Science Schools was 108,858 in 1892, or more than twice as many as in 1882; the number of marked papers was nearly three times as many, and the direct payment on results rose from £49,908 to £123,648. The number of students in organized Science Schools who were examined rose from 450 to 5,488 during the same ten years. The number of persons receiving instruction in Art in some form through the agency of the Department rose from 900,498 (including 842,100 scholars of elementary schools) in 1882, to 2,111,332 (including 1,991,468 scholars of elementary schools) in 1892; and the direct payment on results from £50,352 in 1882, to £183,891 in 1892.

In December, 1892, a letter was addressed by the Science and Art Department to the Councils of Counties and County Boroughs in England and Wales, and to the County Councils, the Town Council of Burghs and the Police Commissioners of Police Burghs in Scotland, asking them to furnish information as to the extent to which the funds accruing under the local taxation (Customs and Excise) Act, 1890,* had been, or were intended to

*AN ACT FOR THE DISTRIBUTION AND APPLICATION OF CERTAIN DUTIES OF CUSTOMS AND EXCISE; AND FOR OTHER PURPOSES CONNECTED THEREWITH.

. . . . . .

1.—(1) Out of the English share of the local taxation (customs and excise) duties paid to the local taxation account of any financial year—

(*a*) The sum of three hundred thousand pounds shall be applied for such purposes of police superannuation in England as hereinafter mentioned;

be, applied to Technical Education, and the amount, if any, raised for the same purpose by rate under the Technical Instruction Act, 1889; and also to give particulars as to the manner in which the funds had been applied and the subjects taught.

From the answers to this circular it appears that of the 49 English County Councils, 42 were giving the whole amount of the residue of the local taxation (Customs and Excise) duties to Technical Education and seven a part of it; of the 61 Councils of English County Boroughs, 51 were devoting the whole and 10 a part to the same purpose. In Wales and Monmouthshire practically the whole amount was being applied to intermediate and Technical Education. In Scotland 21 out of the 33 County Councils were applying the whole amount and 6 a part to Technical Education, the majority of the burghs still applying their share to the relief of the rates. In Ireland, Dublin, Belfast, Londonderry, Galway Union, Cork and Gort Union, were the only places where the local authorities had levied a rate or decided to make grants out of the rates, under the Technical Instruction Act, 1889.

The total amount of the residue paid to the Councils in England and Wales for the financial year 1892-93 was £786,000, out of which it was estimated that over £606,000 had been allotted to educational purposes. In Scotland £34,000 out of the residue of £54,000 was to be devoted to Technical Education.

(b) The residue shall, unless Parliament otherwise determines, be distributed between county and county borough funds, and carried to the Exchequer contribution accounts of those funds respectively, and applied under the Local Government Act, 1888, as if it were part of the English share of the local taxation probate duty, and shall be the subject of an adjustment between counties and county boroughs, according to section thirty-two of the said Act, by the Commissioners under that Act.

(2) The council of any such county or county borough may contribute any sum received by such council in respect of the residue under this section or any part of that sum, for the purposes of technical education within the meaning of the Technical Instruction Act, 1889, and may make that contribution over and above any sum that may be raised by rate under that Act.

(3) A county council may make any such contribution by giving the amount of the contribution, or any part of that amount to any town council or other urban sanitary authority in their county for the purpose of the same being applied by such council or authority under the Technical Instruction Act, 1889, over and above any sum which can be raised under that Act by rate, by such council or authority.

(4) The council for any county to which the Welsh Intermediate Education Act, 1889, applies, may contribute any sum received by such council under this section in respect of the said residue or any part of that sum toward intermediate and technical education under that Act, in addition to the amount which the council can under that Act contribute for such education.

2. Out of the Scotch share of the local taxation (customs and excise) duties paid to the local taxation (Scotland) account, on account of any financial year—

(i.) The sum of forty thousand pounds shall be applied for such purposes of police superannuation in Scotland, as hereinafter mentioned.

(ii.) A sum not exceeding forty thousand pounds shall be applied in relief from the payment of school fees in the state-aided schools in Scotland. . . . . .

Provided, nevertheless, that the council of any such county or burgh, and the commissioners of any such police burgh, may contribute any sum received by such council or commissioners (as the case may be) in respect of the said residue or any part of that sum for the purposes of technical education within the meaning of the Technical Schools (Scotland) Act, 1887, and may make that contribution over and above any sum that may be paid out of any school fund under that Act, whether or not any such sum has been paid out of such fund.

3.—(1) The Irish share of the local taxation (customs and excise) duties paid to the local taxation Ireland) account, on account of any financial year, shall be applied as follows, that is to say, out of such share—

(i.) The sum of seventy-eight thousand pounds shall be paid to the commissioners of education, and shall be distributed by them as nearly as possible in proportion to the average number of pupils daily attending the several national schools in Ireland in aid of which salaries or any other money payments are paid by the said commissioners, estimated according to the rules and regulations of the said commissioners for the time being in force. . . .

(ii.) The residue of such share shall, unless Parliament otherwise determines, be paid to the Intermediate Education Board for Ireland, and be distributed and applied by them amongst schools to which the provisions of the Intermediate Education (Ireland) Act, 1878, apply.

The expression "local taxation probate duty," means the moiety of probate duties which under section twenty-one of the Local Government Act, 1888, and section twenty-one of the Local Government (Scotland) Act, 1889, and section two of the Probate Duties (Scotland and Ireland) Act, 1888, is directed to be paid to the several local taxation accounts in England, Scotland and Ireland respectively.—Statutes (1890) chapter 60.

TRADE AND TECHNICAL SCHOOLS IN THE UNITED STATES OF AMERICA.

(Abridged from the Eighth Annual Report of the Commissioner of Labor on Industrial Education, 1892).

Totally different from the manual training schools in aims and methods are the institutions of a trade and technical character. The manual training school . . . . aims at directing, by courses of mental and manual exercises, the development of all the powers of the individual, the single educational purpose being always kept in view. The trade and technical schools, on the other hand, aim at such special development as will give a mastery of some particular craft. Unlike many of the manual training schools, none of those for trade and technical training are parts of the public school system. The school of Industrial Art at Philadelphia is the only one of its class, so far as known, that has received any assistance from a State appropriation. But no extended summary of the aims and characteristics of the trade and technical schools need be made. Schools of these classes are not so numerous, nor their methods so various, that any elaborate analysis is necessary to make clear the differences in their aims or in the work for which they are organized.

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New York Trade Schools.

In 1881 the New York Trade Schools were established in New York city . . . by Col. Richard T. Auchmuty, a gentleman of means who has given much attention to labor problems. . . . . Here courses of instruction are given at very moderate charges in bricklaying, plastering, plumbing, carpentry, house, sign and fresco painting, stonecutting, blacksmithing, tailoring and printing. There are both day and evening classes. The thoroughness of the instruction given in each of these trades, it is claimed, leaves nothing to be desired. For example, in the bricklaying class the manual instruction will be in building 8, 12 and 16 inch walls; in turning corners and building walls intersecting at different angles; in building piers, arches, flues, fire places; in setting sills and lintels; in corbelling, etc. The scientific instruction is upon the strength of walls, construction of flues, thrust of arches, mixing and properties of mortar, cement, etc This scientific instruction is given by means of lectures illustrated by experiments, and by carefully prepared manuals.

In the bricklaying classes the young men are taught first how to handle the trowel and how to spread mortar. After this they are practised on 8 and 12-inch walls. When these can be carried up plumb and the courses laid level, the class is put upon walls returned at right angles, piers, arches, fire-places and flues. Great care is exercised that each brick is properly laid, and that the joints are neatly pointed. No attempt is made to work fast until towards the close of the course, when an hour is given, at stated intervals, to ascertain how many brick each member of the class can lay in that time in a workmanlike manner on a straight wall. The brickwork is carried up as high as the young men can conveniently work; it is then torn down, and the bricks cleaned to be used again. The young men are then required to practice under the constant supervision of the instructors until they can do the work well. The course of instruction in this department extends through nearly six months for the evening classes. The tuition costs $18 for the course. The evening class is limited to 100 young men. Equal facilities are afforded for learning the other trades taught in this school, and equal thoroughness characterizes the instruction given.

A circumstance of peculiar significance in connection with the tailoring department of the Auchmuty School deserves to be specially mentioned, namely, that the tailoring class is managed by the Merchant Tailors' Society of New York. The object of this Society in establishing a school of tailoring is to teach the trade thoroughly in all its parts. The school is under the supervision of first-class teachers, who are practical tailors and understand every detail of the trade. Instruction is given throughout the year from 8.30 a.m. to 4 30 p.m. with one hour intermission at noon, except Saturday. The cost of tuition is $100, payable in advance, for the entire course of two years, or less, if the pupil is found proficient by the examining committee.

School of the Philadelphia Builders' Exchange.

As an illustration of what may be accomplished by associations and corporate bodies in the way of establishing apprentice schools, we may cite the example of the Philadelphia Master Builders' Exchange. The school was opened on September 2nd, 1890, with an attendance of 129 pupils, each of whom pays $18 per term of nine months. These pupils (of their own option) were apportioned among the several branches of trade as follows: Plumbing, 61; bricklaying, 31; carpentry, 21; blacksmithing, 7; stone-cutting, 3; painting, 3, and plastering 3.

The first year's course of instruction in the Philadelphia Trade Schools was completed in June, 1891, and the occasion was observed with fitting graduation ceremonies. Commenting on the exercises, the Philadelphia *Times* said: "The special need of the country to-day is educated mechanics; that is, a class of skilled industry that is more than mechanical in its aims and attainments, a class that is artistic in everything pertaining to its calling. We have plenty of men in all trades who imitate the mechanical routine they have learned, but the thorough mastery of our mechanical trades is well nigh a lost art in the United States, and the result is that foreigners are now very largely filling the more responsible and lucrative mechanical positions in America."

Institute for Colored Youth.

The Institute for Colored Youth in Philadelphia was chartered by the State of Pennsylvania in 1842, on the foundation of a bequest by Mr. Richard Humphreys, whose will provided for the establishment of a school "having for its object the benevolent design of instructing the descendants of the African race in school learning, in the various branches of the mechanical arts and trades, and in agriculture, in order to prepare, fit and qualify them to act as teachers."

An industrial department was finally opened in connection with the school, and in the year 1889 instruction was commenced in the trades of carpentry, bricklaying, shoemaking, printing, dressmaking, millinery, etc. At the close of 1891, there were 108 males and 151 females enrolled in this department. The school is under the care of the Society of Friends. There are nine teachers in all connected with the Institute, and the course of study covers four years. This includes the high school and normal courses.

Williamson Free School of Mechanical Trades.

One of the most liberally planned and endowed of institutions of its class is the Williamson Free School of Mechanical Trades, founded by the late Isaiah V. Williamson, of Philadelphia, "for the purpose of giving poor and deserving boys a good English education, for training them in habits of morality, economy and industry, and for teaching them mechanical trades." The school is different in some respects from any trade school previously established. It is designed to take the place, so far as a school can, of the old apprenticeship system.

The school has an equipment ample for its purposes. There are three shop buildings well fitted for the trades taught, those for the wood-working and machine trades being well equipped with power tools. The plant, including land, buildings and equipment, to the present time (1892), has cost $363,394.60, besides which the school has an endowment and other funds of the par value of $1,575,812.05, the market value being somewhat greater.

Each boy on entering the school is given a preparatory course of six months in wood-working and mechanical drawing in connection with studies in the school-room. At the end of that time he is placed at one of the following three trades (the selection being made by the trustees, due regard being given to the inclination and adaptibility of the boys to the trade to which they are assigned): wood-working in its various branches, such as carpentering, patternmaking, cabinetmaking, etc., building, including bricklaying, tile, range and boiler setting, etc., plastering and stone masonry; machine trade in all its usual details, including practical training in steam and electrical engineering, steam-

fitting, etc. Each boy takes but one of the trades named, and his instruction in mechanical drawing, which continues during his entire course, tends in the general direction of his trade. . . . The benefits of the school are entirely free, no charge being made for boarding, clothing or instruction.

All boys admitted are bound as indentured apprentices to the trustees for three years. The indenture may, however, be cancelled by the trustees for the pupil's incompetency or bad conduct, or if, in their opinion, the pupil has so advanced in his studies as to make it more advantageous for him to pursue his work elsewhere. The number of applications for admission has greatly exceeded the capacity of the school, which was opened October 20th, 1891.

General Society of Mechanics and Tradesmen.

The General Society of Mechanics and Tradesmen of New York city maintains a free school of industrial drawing. The classes are composed of young and middle-aged mechanics, all of whom are daily engaged in occupations that demand a knowledge of drawing, of a special kind, before they are able to make any advance in their several trades. The work of the school, as designed, provides such training as will advance them in the most rapid and practical manner. The instruction is not, properly speaking, class, but rather individual instruction, the teacher giving each pupil personal attention and advancing him according to his knowledge and capacity.

The plan of the school comprehends an architectural or builders' course, a mechanical course, a course in freehand drawing, a course in cabinet work and decorative design, and a course in modelling. There are, besides, courses in stenography and typewriting.

The architectural or builders' course is for the study of architectural work and drawings as prepared by architects. The object of the instruction is to enable the pupil to fully understand and work from such drawings, and to prepare for himself drawings of lesser importance. The pupils are masons, carpenters, stone-cutters, ornamental bricklayers, etc., of all degrees of proficiency from the beginner up. The students in the mechanical course are from much the same occupations as in the builders' course. The work embraces the geometrical drawings required by joiners, framers, stair builders, metal workers, patternmakers, etc., with the special applications in each occupation.

In the course in freehand drawing are found engravers, chasers, diesinkers, fresco painters, lithographers, etc., training themselves for advancement in their chosen vocations. The course in cabinet and decorative design attracts cabinetmakers, furniture designers, decorators, wood-carvers, etc. There is also a course in modelling where good work is done. This society also maintains ten free scholarships in the New York Trade Schools.

Newark Technical School.

The Newark Technical School of Newark, New Jersey, according to the directors' statement, is not a school of manual training. The classes of men the technical school is designed to reach are abnormally developed, it might be said, in the line of manual training, and it is the mental training which is necessary to round out the complete man. The latter the technical school designs to give. This institution (at Newark) is, as nearly as possible, a continuation school of Europe, transported to the shores of New Jersey.

School of Messrs. Hoe & Co.

For thirty years a school has been conducted in New York city by the Messrs. Hoe & Co., of printing press fame, for the benefit of the sons of their workmen. According to reliable statistics some 250 boys are employed in the factory of the Messrs. Hoe. Since they cannot all be taught at the same time, they are divided into classes receiving instruction two evenings a week. The teachers and the school rooms are provided by the firm. . . . . The school is free.

Textile School, Philadelphia.

The School of Industrial Art in Philadelphia has a textile department, established in 1883, which, in the estimation of good judges, is superior to the famous Crefeld School.

In 1882, the manufacturers of Philadelphia subscribed $30,000 to establish the enterprise, "partly from a design to advance their own interests by educating the workmen and designers employed in their own mills to do the higher classes of work, which are or course always the most profitable, but largely and mainly from motives of pure patriotism and philanthropy, to help raise the standard of American productions and to educate American youths in such a way as to enable them to occupy the positions as designers and superintendents now held almost exclusively by men who have profited by the advantages offered by European schools."

The course of technical study in this school extends over three years, and there is probably no school in the world where the manufacture of textile fabrics, in all its branches, is more thoroughly or more practically taught than in the School of Industrial Art at Philadelphia.

Institute for Artist Artisans.

In 1888, Mr. John Ward Stimson founded a school for artist-artisans at the American Institute in New York city. In this school "mind and hand are trained together, enjoyment waits upon appreciation, and servile imitation gives way to the expression of individuality." From a commercial and industrial point of view, the necessity of the best art instruction for artisans is becoming more and more a demand of the times.

School of Industrial Art and Technical Design for Women.

The School of Industrial Art and Technical Design for Women in New York city owes its origin and prosperity to the intelligent purpose and energetic management of its principal, Mrs. Florence E. Cory, who, in October, 1881, organized her first class of five pupils, instructing them in the principles of design and the practical application of those principles to industrial art.

This institution is said to be the only school of practical design for industrial manufacture in the world. In other schools of design the teachers might teach a young lady to make a wall paper design; sit her down with paper, brushes and colors, she might make a beautiful design, but would not know (neither would the teachers) whether that design could be printed by machinery or not. She would not know how many colors she should use; how the colors should fall, the dimensions, or anything of the kind; the teachers do not know. A design may be well executed, faultlessly correct, and beautiful, yet worthless to the manufacturer, because it cannot be woven or printed. Machinery has its requirements and its limitations, all of which must be considered when making a design, and without the practical knowledge necessary to do this an acceptable working design cannot be made.

In this school pupils are made practically familiar with the workings of machinery and the technicalities of design as applied to various industries, as carpet designing, wall paper, oil-cloth, linoleum, lace, chintz, silk, leather, book covers, etc. Two years are required for the completion of the full course of instruction. The first year classes are taught simple designing for calico, muslin, stained glass, inlaid woods, jewelry, etc. In the second year the pupils learn advanced designs for oil-cloth, silk, carpets, etc. Some pupils attend a postgraduate course of one year. During the year no formal instruction is given, but orders are received and work is done by the pupils under the supervision of the Principal and well-known designers.

The Principal, writing under date of August 6th, 1891, says: "By far the greater number of graduates are at work in their own homes, and are not employed regularly at a stated salary by any manufacturer. When their designs are finished they are sold to whichever manufactory pays the highest price."

Art Academy, Cincinnati.

The Art Academy of Cincinnati, Ohio, is devoted principally to the teaching of drawing and painting, but also to modelling, decorative design, wood carving, china painting, etc. About 400 students annually receive instruction in this institution.

Ohio Mechanics' Institute.

The Ohio Mechanics' Institute of Cincinnati has been in existence since 1828, and it is, therefore, one of the oldest of the schools of industrial art in the country, as it is one of the best. It has six departments, viz.: mechanical, for engineers, metal workers, machinists, patternmakers, blacksmiths, etc.; architectural, for architects, carpenters, masons, wood-workers, builders, etc.; artistic, for freehand drawing, perspective, crayon, etc.; for painters, carvers, cabinet-makers, etc., including instruction in designing as applied to the manufacture of furniture, jewelry, silverware, carpets, lace and damask hangings, etc.; practical mechanics; carriage drafting; mathematics—chiefly to aid work in other departments. Since its foundation 9,371 members have been enrolled in the institute. During the school year 1890-91 there were 720 names on the roll.

Technical Drawing School, Providence.

The Technical Drawing School of Providence, R. I, was established in 1887 for the purpose of giving instruction in engineering and architecture, which, while extending over ten months only, should furnish a thoroughly practical technical training.

Rhode Island School of Design.

The Rhode Island School of Design at Providence was opened in 1878, and in 1891 the number of students in the school was 341. In the department of freehand drawing there were 216, in that of mechanical drawing 125. There were eight in the graduating class. Painting, modelling and wood-carving are also included in the courses of study. The course in each department is of three years' duration. There are eight instructors.

Art and Drawing School, St. Louis.

The Art and Drawing School, St. Louis, Missouri, has both day and night classes, as well as Sunday classes. There is a night school for freehand drawing (Tuesday and Thursday) from 7 to 9 p.m., school for machinery, perspective drawing, etc., (Wednesday and Friday) from 7 to 9 p m. Day school for drawing (daily, except Saturday) and school for carving and modelling (daily except Saturday). Sunday school for drawing, carving and modelling, and every Saturday drawing classes for boys and girls. Within the past fifteen years there have been over 3,000 pupils in this private school.

Lowell School of Practical Design.

The Lowell School of Practical Design, Boston, Mass., established in 1872, for the purpose of promoting industrial art, is now under the control of the Massachusetts Institute of Technology. Tuition is free to all pupils.

Although the extent and scope of the Pratt Institute, Brooklyn, N. Y., the Drexel Institute, at Philadelphia, Pa., and Armour Institute, Chicago, Ill., place them in a class far beyond those other technical schools noticed, yet a passing reference is considered opportune here.

Pratt Institute.

Rarely, if ever, has a great educational institution been more happy in conception, more wisely planned, or more successful in the results achieved in a brief time than the Pratt Institute, Brooklyn, N. Y. This institute occupies four large buildings, some of them six stories high.

The catalogue of the institute for 1892-3, shows that the number of individuals registered in the various departments for the fifth year of the school (1891-2) was not less than 3,941.

Besides the heads of the seven departments, the teaching force of the school numbers about 90 instructors and assistants.

The Institute has been most liberally provided for by Mr. Pratt. A statement made by the President in October, 1891, shows the amount of its property: Endowment fund, $2,000,000; real estate, building and equipment fund, to be used as required, $835,000; cost of present Institute buildings, equipment and grounds, $523,337.61; cost of Astral, Inwood and Studio buildings, $332,437.07—total $3,690,774.68.

The catalogue of the Institute for 1892-23, shows the registration of pupils in the various departments to have been 3,941 in all.

Drexel Institute.

The Drexel Institute of Art, Science and Industry, at Philadelphia, Pa., is a new school of complex character. The school was opened in September, 1892. As now organized its work comprehends six departments, viz., department of mechanical arts; business department, including a commercial course and a course in stenography and type-writing; technical department, including cookery courses and trade courses in dressmaking and millinery; normal department, including courses for training of teachers in drawing, science, physical culture, manual training, cookery, dressmaking and millinery. and the course in library work; scientific training in physics and chemistry, and application; and art department, including a regular art course, a normal art course, a course in mechanical and architectural drawing, and courses in applied design, decorative painting, wood carving and stained glass.

The building with its equipment has thus far cost about $1,000,000. The Endowment is $1,000,000, which is dedicated to the maintainance of the instruction. The Institute possesses a valuable library of about 10,000 volumes, and a museum devoted to art industrial productions, such as textiles, ceramics, wood carvings, metal work, ivories, embroideries, etc. The whole is the gift of (the late) Mr. Drexel—Childs and Drexel—of Philadelphia. . . . .

The instruction in the department of mechanical arts is of the advanced manual training character. It aims to give general rather than special training. The work provides a thorough course in Mathematics, Science, Drawing, and shop work in connection with the essential English branches of a secondary education. The time of the student is about equally divided between the class-room and laboratory studies and the shop work. The course of studies and instruction covers three years of two terms each. The tuition is $20 per term.

The art department, besides its regular art and normal courses, offers some art courses of special industrial value. The first of these are special courses in mechanical and architectural drawing designed to fit students for practical work in the drafting-room and the architect's office.

The course in applied design is for the training of professional designers, and occupies three years. It provides instruction in the principles of decorative design and in the technical methods of their general application. The instruction runs nearly parallel with that given in the first three years of the regular art course, with a special training in the application of art to the production of original designs for oilcloth, wall papers, carpets, wood work, metal work, tiles, book covers, etc. Thorough technical courses are given in decorative painting, wood-carving and stained glass work. In all these courses a preliminary art training is necessary to the completion of the work.

Armour Institute.

It is expected the Armour Institute (to be opened for th pupils in 1893 at Chicago, Ill.,) will prove a powerful auxiliary of educational work in the Northwest. This Institute has been organized on the plan of a series of trade and advanced technical schools. It will do for Chicago a work similar to that done by the Pratt Institute in Brooklyn, and the Drexel Institute in Philadelphia, but still broader and more diversified. The carrying out of the full idea, including the new building for the manual training and practical classes, recently completed, will involve an expenditure by Mr. Armour of about $3,000,000, including the large amount of productive property surrounding the institution which Mr. Armour has given for purposes of perpetual endowment.

TECHNICAL AND TRADE SCHOOLS.

Germany.

Mr. J. C. Monaghan, U. S. Consul at Chemnitz, Germany, in Consular Reports to the Home Government—February-May, 1894—dealing in detail with the subject of "Technical and Trade Schools" in Germany, says :

"The masons' and builders' schools, the most of the industrial and industrial-art schools, had their origin in a desire to give young men—carpenters', masons' and builders' apprentices—just such a training as would be best suited to help them to understand each piece of new work, and to come 'out of their time' fully qualified to enter the ranks of skilled workmen. A scholar attending one of these schools, all other things being equal, gets a very great deal more out of his period of apprenticeship than boys who do not attend them. So certain are their results that attendance in many cities of the Empire is being made compulsory, employers being compelled to give time to apprentices to attend, and to see that they do attend.

"The school gives the boys, besides a good, practical general education, the best and most recent practical and theoretical knowledge obtainable. It teaches them to be careful, conscientious, painstaking, skilful, scientific workmen. The best teachers are employed, and the most recent and most approved methods and machinery are used. There is no extravagance in building, furniture, or salaries. Politics play no part in the German school system. Merit and ability are qualifications absolutely necessary to get a place. Everything about the schools looks to be strong, useful and in keeping with its purpose. The new schools are usually prize plans—models of architectural beauty. In some cities the old castles are turned into schools. The Japanese palace is now used as a masons' and builders' school at Dresden.

"Teachers told me that it is best for a boy to have at least some idea of masonry or building before coming to the schools. The best work is done where apprentices can come two or three hours each day, or by scholars who come evenings, and, of course, by such boys as take an interest in work and studies. Every study, every day's work turns or is turned toward making the students skilful mechanics. Drawing and masonry are among the fundamentals. Great importance is attached to turning the boys out qualified to go on studying ; to take up every new invention or implement and apply it scientifically ; to be able, opportunity offering, to become foremen, superintendents, or contractors themselves.

"It is urged as best for those thinking of taking a course in a masons' and builders' school to spend at least the summer and spring, preceding the fall or winter in which they are to enter, with practical mechanics, working in the branch or trade they intend to study ; that a good common school education is an indispensable requisite ; and that one or more years' work among machines and handling tools is a great preparatory help. In places where the winters are severe, and masons' and carpenters' work is suspended, it is urged that apprentices put in the winter months at schools. Now that competition is so close, skill and knowledge are almost absolutely necessary. To begin the battle for life the very best equipment is a sound, solid, practical education. This is to be got in just such schools as I am trying to describe. The ambition of the teacher is to build

up his own and the school's record; to do this he does the best he can. Apprentices are often left by regular employers to look out for themselves, to pick up only odd bits of knowledge dropped accidentally, never intentionally, for the apprentice's benefit. A graduate of one of these schools is independent of accident; what he sees and hears he drinks in understandingly.

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"In 1877 a plumbers' school was opened at Aue, Saxony. Its purpose was to give young men intending to take up plumbing, or any branch of the trade, such theoretical and practical knowledge as would make the apprentice period pleasant and profitable. It was intended to give them, in the shortest time, business training and industrial art, as well as practical knowledge. It seems to have had its origin in a desire to supply plumbers' apprentices with just such a preliminary training as would fit them to understand their calling without undergoing the long years of drudgery, and practically learning very little, under the old system. Trained as in the school at Aue, they would be profiting from the first moment of their apprenticeship. . . . All the studies tend towards the trade to be learned. . . . .

"A graduate from such a school brings to the shop an enthusiasm and attention, a knowledge and skill, that aid his employer and himself. The division of labor is to-day so complete that apprentices in large shops have very seldom an opportunity to learn a trade thoroughly. They learn only a part—some special branch. Of the whole they have hardly an idea. In small shops masters seldom teach a lad much before the last year. The Aue school puts it into the boy's power to learn everything, and puts it out of the master's power to keep much from him. An Aue graduate can take up any branch of the plumber's trade and learn it in a short time. The purpose of the school is to bring out and build up all that is best in a boy's nature, to inspire a love for his work, to give him just such knowledge as will make him understand and do even the most difficult work. Not only the practical or utilitarian side of the trade is shown to him, but also its scientific and artistic phases, its relation to art and architecture, and its importance to sanitation. These schools are doing much for Germany, and I can think of nothing more needed in the United States than similar schools

"The school is pleasantly situated. Its surroundings are very agreeable and healthy. The courses are very cheap, the whole costing very little compared with prices that prevail with us. It gets its support from the State, from the city, and from plumbers' unions. A fact worth knowing about Germany's industrial, industrial art, and technical schools is that, if the Government ceases to give them its support, the branches of business to which they are useful will support them. This is the invariable answer I get when I ask what would result in the event of Government support being withdrawn. . .

"I desire to again call attention to the fact that all educators here are agreed that the very thing to do before taking a course in a technical school is to work one, two or three years in a shop or factory. Boys who have done this learn more easily and make much better use of their time. . . . .

"I have on my desk at this moment drawings of most intricate machinery made from memory by a German draftsman after he had gone through several shops in which he either was not allowed to, or did not venture to, take notes. Not till I saw these did I understand why it is that in German industrial, industrial art, and technical schools more time and attention is given to drawing than to any other branch—very often twice as much."

Holland.

In Holland, while ample provisions are made for the government of middle instruction—public and private—the Public Middle School instruction embraces (*a*) burgher schools; (*b*) higher burgher schools; (*c*) agricultural schools, and (*d*) the polytechnic schools.

Burgher schools, chiefly designed for prospective tradesmen or mechanics and agriculturists, are day and evening schools. Day schools have a course of two years, and instruction is given in mathematics; the rudiments of theoretical and applied mechanics, and the know-

ledge of machinery; physics and chemistry; natural history; technology or agriculture; elements of geography, of history, of the Dutch language; rudiments of political economy; freehand and rectilinear drawing; gymnastics. The communal council may decide to add modelling or any foreign language, and also which of the above subjects shall be taught in the evening school.

In every commune with above 10,000 population the council shall establish at least one burgher school, day and evening, and it may be in combination with a public elementary school; where the population is very scattered the commune may be exempted. Should an evening burgher school appear to meet the wants of any commune the Crown may exempt from establishing a day school, but only for a certain number of years; in this case the course of the evening school extends over two years and the Crown decides upon the subjects.

The Polytechnic School is intended for the training of (1) individuals for industrial or technical pursuits, who require a higher degree of knowledge than can be obtained at a higher burgher school; (2) such as desire to qualify for civil engineer, architect, naval engineer, mechanical engineer, and mining engineer.

Abstract of Report on Burgher Schools, 1876.

The programme for the day burgher schools is fixed by law. The subjects in the evening schools generally are mathematics, mechanism, physics, chemistry, political economy, technology, Dutch language, history, geography, freehand and rectilinear, drawing. Instruction in the workshop is only given in the Industrial School at Rotterdam, where the handicrafts of the carpenter, smith, joiner, bricklayer, stone-mason, etc., are taught.

The day burgher schools have not been successful in attracting the class for which they were chiefly intended, but the results of the evening schools were more favorable, as at the date of the last return they were attended by 4,148 pupils, of whom 3,307 were already practising some trade, and the parents of most of the rest were operatives and dealers.

In the burgher schools of both kinds, and the institutions on a par with them, are 348 teachers. The salaries of nearly 60 per cent. of the teachers do not amount to quite 400 florins. Of the day and evening burgher schools alone the average is 1,021 florins. For the evening burgh schools and other institutions, the average is 415 florins to each teacher. Admission to the classes is preceded by a simple examination in reading, writing and cyphering. Opportunities are also afforded of passing leaving examinations.

Special buildings and appliances are in many cases provided. A building has been erected in Rotterdam for the academy of the plastic arts and technical sciences, at a cost of more than 100,000 florins.

In communes where no day or evening burgher schools have been established the drawing schools have been allowed to remain; the number of these was in 1874, 32, with 120 teachers and 2,500 pupils; in all these the instruction comprised freehand and architectural drawing; in some mathematics are added; in a few, mathematics and physics, and in three of them modelling. Special mention may be made of the Royal School for the plastic arts at Bais le Duc, with 8 teachers and 320 pupils. The academy for the plastic arts at the Hague, with 14 teachers and 310 pupils; the Industrial School at Hague, with 11 teachers and 69 pupils; the Industrial School at Amsterdam, founded by the Society of Operatives, with 14 teachers and 88 pupils (in both these last instruction is given in the workshop); and a second school of the same society, without instruction in the workshop, with 11 teachers and 109 pupils. The following abstract of the curriculum of the Rotterdam trade school will indicate the general scope of such schools:

The Artisans' School, Rotterdam.

The object of this school, established in 1869, is to practically educate young artisans, and it was instituted for this purpose by the Rotterdam department of the Netherlands Architectural Society.

A committee was appointed which obtained an annual grant from the Town Council, on condition that the programme of the school should include all the branches of theoretical instruction which are taught at the public middle class school, with a course of three years.

The building was purchased with funds raised by voluntary subscription; it contains class rooms for mathematics, physics, construction and rectilinear drawing, ornamental drawing, and a painter's workshop. The workshops for the different trades are separate from the main building; these will consist, when a contemplated extension is carried out, of commodious workshops for carpenters, blacksmiths, metal workers, fitters and turners, cabinet-makers, stonecutters and masons.

The practical instruction is given in the afternoon, and includes, besides the above mentioned trades, those of braziers, wood-carvers, modellers, turners, etc.; all purely ornamental work is excluded, the pupils being employed on solid and useful work, either for use in the school or for sale outside.

The workshops are, as far as possible, kept up to the latest standard and provided with all necessary appliances; more than eighty pupils are taught together in the carpenters' shops, and seventy in the smithies; almost all requisites for the school, such as doors, windows, benches, chests, locks, hinges, nails, kitchen utensils of all kinds, painting, stonework, etc., are made and executed by the pupils.

A few hours each morning are devoted to instruction in general branches; for every class except the first it includes reading, writing, arithmetic, and grammar; the other general subjects are practical arithmetic, algebra, physics, model and ornamental drawing, rectilinear and architectural drawing and perspective.

Regard is always had to the fact that the pupils are intended to be artisans, and the instruction is therefore restricted within limits considered suitable for their class, and all illustrations are, as far as possible, applicable to their daily life. Thus in drawing they are taught to sketch locks, windows, etc., both in parts and as wholes.

There are in all twenty-one masters, including the director, and the number of pupils, almost without exception workmen's children, was at the beginning of the first year 111; the second, 132; the third, 134; the fourth, 156; the fifth, 189; and the sixth, 198.

Admission is made as easy as possible as regards the fees; only 8s. a year is charged for each; those parents who cannot afford even this may easily obtain admission for their children by applying to the larger contributors to the school, who have the right of placing one or more pupils free of cost. Boys must be from twelve to fifteen years of age, and pass an easy entrance examination in reading, writing and arithmetic.

Those who successfully complete the three years' course are honorably dismissed, and the committee finds them good places as workmen, and for five years longer still keeps them in view and exercises its influence for their welfare. The number of such pupils at the end of the fourth year (or of the first complete course) was 28; the fifth, 31; and the sixth, 17; and the result of their education is shown in their general superiority to their fellow workmen.

The heavy expenses of the school are met by a number of voluntary subscriptions and liberal grants from the Town Council and the Provincial Government.

Abstract of Report on High Schools, 1876.

There are now 17 of these Government schools, of which 9 have a five years' and 8 a three years' curriculum; 22 higher burgher communal schools, of which 20 are subsidized by the State; 3 subsidized communal higher burgher schools, having a four years' curriculum; 4 subsidized and 1 non-subsidized schools have a three years' curriculum; 1 subsidized private school, having a five years' curriculum; and 1 non-subsidized communal commercial school, with a three years' curriculum; total, 49 higher burgher schools. The 28 public grants amount to 197,750 florins.

The proportion of the whole population of the country attending these schools is 9 7 per 10,000, and the pupils are chiefly between the ages of twelve and seventeen; each class has a course of one year, and therefore the school with a five years' curriculum can be got through in five years. . . . . .

In August, 1867, a communal middle school, with a five years' curriculum, for girls, was opened at Haarlem, and similar establishments were opened respectively in 1870 at Arnhem, in 1871 at Rotterdam and Dordrecht; and in 1872 at Amsterdam, Derventer, and Groningen. The schools at Arnhem, Rotterdam, Dordrecht, Haarlem and Groningen are all with five years' curriculum; those at Amsterdam and Derventer only three. In 1875 a five years' school was opened at Lunwarden, and one of three years at Utrecht.

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At first the higher burgher schools for girls meet with opposition, but since the communal authorities founded and organized them well they have become popular, and the Government has granted a subsidy of 2,000 florins for the school at Haarlem.

There is another school for girls, of a different description, viz.: "The Industrial School for Girls," founded in Amsterdam in 1865, on quite a small scale; it has, however, so prospered that in 1874 it had 172 pupils, with a directress and eight other male and female teachers, whose salaries amount to about 8,000 florins (£700). The course extends over three years, the first two of which are devoted to theoretical and practical industrial instruction, the third exclusively to the teaching of trades for females. Instruction is given in drawing and coloring, in lithographing and wood carving, pasteboard works, fancy work and plain needle-work, lace making, the use of the sewing machine, and pharmacy —this last so that pupils may pass as assistant apothecary; in 1870 five pupils underwent this examination. The whole expenditure of the school is about £1,000; the State, the Province, and the Commune, together subsidize it to the amount of about £570; the school fees are from about £1 15s. to £2 3s. The State bears the yearly charge for supervision, examinations, the polytechnic school, the Government higher burgher schools, the Government Agricultural School, and subsidies for communal and some private establishments. The communes bear the expense of the local boards, of their own higher burgher schools, of the burgher schools, of some drawing schools and similar establishments, and subsidies to certain private establishments; the provinces also furnish a few subsidies to such establishments, especially to navigation, horticultural, and agricultural schools, etc.

Italy.

Technical instruction in Italy was instituted by the laws of 1859, which provided for two kinds of schools—the Technical Schools and the Technical Institutes. The former give elementary instruction and prepare for the Institutes.

Some of these institutions were founded before the law of 1859 was passed; in fact, those of Turin and Genoa were transformed from special schools then existing; the Technical Institutes of Milan and Venice from real-schools, and that of Florence from the one established in 1853, at the termination of the Tuscan Grand Ducal Government. It is worthy of note that this Institute is the continuation of one established by the Grand Duke Peter Leopold I., and is considered the oldest institution for technical instruction existing in Italy.

By a regulation framed in 1860, Technical Institutes were re-divided into four sections: the administrative-commercial, the agricultural, the chemical, and physical-mathematical. For the first three sections the course was for two, for the fourth, three years.

The law provides that a Technical Institute need not be established till the want of it is shown, that the instruction should be in proportion to the economic wants of the province in which it is to be imparted; that the cost of scientific apparatus should be entirely borne by the province, and that of the non-scientific apparatus by the commune in which the school is established, and that the Government should pay half the stipends of the educational staff in those schools which were conducted in accordance with the regulations laid down by the Government.

All these regulations were, to some extent, experimental, and a new set of regulations was ordered in 1865, but the first real impulse to the Technical Institutes was given in 1871. The sections were fixed at five in number, viz: The physical-mathematical, surveying, the agricultural, commerce and accountantship (*di commercio e di ragioneria*) and the industrial. Each section had a course of two years of general and

two years of special study, except for accountantship, which had a fifth year in addition to the four of the commercial section. The principal result of these regulations was to extend general culture, the simplification of the system of instruction, and the reform of the programme in such a way as to make them more useful in the extension of scientific education.

Certain alterations were made in the regulations in 1877, but the Technical Institutes still retain the five sections as follows: Physical-mathematics, land surveying, agriculture, commerce and accountantship and industry. All the Institutes, however, are not provided with all five of the sections, each school paying attention to those which chiefly relate to the natural and social conditions and wants of the place in which it is situated.

The physical-mathematical section has the character of a school of general culture, which is given to it by the study of modern languages, especially of Italian literature; the classical instruction relating more especially to the study of Greek and Latin literature. The other sections profit, in various degrees, by the instruction given in this, as they add to their own programmes any subjects belonging to this division which may apply to their own more special courses.

The section of agriculture is divided into two parts; one of land surveying and one of husbandry. In addition to the studies common to both, each has also a distinct course of instruction. The section of land surveying includes the subjects of descriptive and constructive and practical geometry; the agricultural part, those of chemistry as applied to husbandry; the planning and construction of rural works, and exercises in practical geometry. The agricultural division has at its disposal a sufficiently extensive piece of land arranged for agricultural work, to allow the students not only to witness the operations of agricultural machines, but also to learn the proper mode of treating domestic animals, the right method of keeping account books of farming operations, the cultivation of plants and all those operations which gradually succeed one another in the course of a year, and in all kinds of rural operations and management. The pupils in land surveying are chiefly exercised in matters connected with that subject.

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Finally, for the section of industry, which exists only in the Institutes of Como, Livorno, Naples, Rome, Turin and Venice, the law only prescribes those subjects of study which relate to general culture and which are common to all the other sections, leaving to each school liberty to determine upon the special studies and exercises which help to carry out their aim, as the silk industry at Como, chemical and industrial mechanics at Naples, wool-weaving and industrial chemistry at Turin, construction and general mechanical industry at Rome and special mechanics at Livorno.

In whatever manner the Technical Institutes may be arranged, they all have the same end, viz: to give youths the opportunity of determining upon a profession; they are, also, steps to the mathematical faculties of the universities and to the special higher schools, in which there is a larger and more complete course of study than in the Technical Institutes. In fact, the licentiate of the physical mathematical section gives admission without examination to the Faculty of Physical Science, mathematical and natural of the universities, to the higher schools of agriculture at Milan, Pisa and Portici, to that of commerce at Venice, to the higher naval school in Genoa, and the Industrial Museum of Turin. On the completion of their studies in the other four sections, candidates receive a professional diploma corresponding with the section in which they have carried on their studies. . . . . .

The diploma of the industrial section gives the right to assume the title of "industrial expert;" and, secondly, to take the special direction of the studies carried on in this section (which vary in different sections), and to be admitted for such posts as superintendent of work-rooms and laboratories.

Schools of Art and Trade.

The idea of providing the laboring classes, besides elementary instruction, with an education in the manual arts, and their greater developments, is an old one in Italy, and their final establishment was effected by the same charitable feeling as that which provided

hospitals and other similar institutions. Day and evening schools for operatives were founded, in which instruction was given in reading, writing, arithmetic, geometry, drawing and the principal physical-chemical sciences.

In the year 1869 the number of these schools reached a total of 154, employing 567 teachers and having 13,329 pupils, the cost amounting to about £57,000. These differ materially both in their origin and system; some are developments of older schools, and some are of recent creation, and while the instruction in some is purely theoretical, in others attention is mainly given to actual manual work; some arrange their courses so as to teach science in its general relations with industry; others give their time to some particular handicraft, such as silk manufacturing, the dyeing arts, or watch making; and finally, while some teach only youths, others are expressly for adults.

The regulations of the schools are arranged according to local circumstances and wants.

The Government recognizing the necessity of encouraging the principal manufacturing so as to foster production of the best description at the lowest possible cost, and to compete with other nations took the initiative in supporting the schools. It was fully recognized that a plan of instruction must be formed, especially fitted for workmen attending schools attached to workshops, special trade schools, or schools of design; the artisan is not in a position to attend the Technical Institutes, and it is necessary to teach him the principles of his trade in a short time; hence the necessity for their schools of art and trade, properly so called, which must not be considered so much Technical Schools, as a course preparatory to them; they are solely intended to train able foremen, and superintendents of small workshops, that is the lower classes of operatives and industrial officials. It was decided that schools of practical instruction only are insufficient for the purposes sought to be carried out, and that, in fact, the theoretical instruction was the more important of the two branches, and it was therefore left to the artisan to practice his trade in an ordinary workshop as a paid artificer and have the principles of his art explained and made clear to him at the school.

Two classes were established, one daily, for giving instruction to youths who had completed their elementary education, and who devoted themselves to the exercise of the arts; the other evening, for those who had already entered on the exercise of a trade, who were more than fourteen years of age, and who could read and write correctly; in each school in addition to instruction in the special industry for which it was founded, the pupils were further educated in the Italian language, arithmetic and caligraphy.

About a third of the cost is borne by the state and the rest by the commune and the province in which the school is situated. The schools are managed by a committee appointed partly by the state, partly by the commune, and this committee makes the regulations, subject to the approval of the Minister, superintends the progress of the school, and accounts for the sum spent on its maintenance. Each school applies to the Royal Italian Industrial Museum for the means of establishing scientific collections, chemical laboratories, etc.; the museum furnishes them with designs of machines and parts of machines and other things necessary for the illustration of the lessons.

Those who are intended for instructors in these schools, which consist partly of engineers, partly of recently made licentiates of the applied schools, are provided with the means of going abroad in order to perfect their studies of the subjects they have already been devoting themselves to by attending courses of applied science in the most famous industrial schools, and by visiting workshops and museums in Belgium, France, Germany and England.

In 1873 there were twenty Government schools of art and trade, with 104 teachers and 1,377 pupils, as follows: (1) Evening industrial and commercial school at Asti; (2) Professional school—this has sections for the mechanical arts, chemistry, textile fabrics, etc., at Biella; (3) Special school of lace-making at Burano; (4) Industrial school, for quarrying and working marble, at Carrara; (5) Professional school, with sections for cabinet-makers, and for smiths' work in wooden and iron naval construction, Chiavari; (6) School of arts and trades—sections for industrial, and for agricultural chemistry, Fabbriano; (7) Institute of arts and trades—sections for the mechanical arts and for carving and engraving, Fermo; (8) School of wood-engraving, Florence; (9) School of

arts and trades, with sections for the art of construction and for smiths' work, Foggia; (10) Schools of arts and trades, with sections for smiths' work and mechanics, Foligno; (11) Evening technical school, Genoa; (12) School for head managers and head officials of mines, Iglesias; (13) School for fountain builders, Palermo; (14) School of design and lace manufacture, Rapallo; (15) School of arts and trades, with sections for cabinet-making and for the ceramic arts, Savona; (16) School of arts and trades—sections for textile work, and for dyeing, Schio; (17) School of design and plastic ornament, Serravezza; (18) School of arts and trades, with sections for decorative art and for ceramics, Sesto-Fiorentino; (19) Evening technical school, Turin; and (20) Venetian school of art, applied to industry, Venice.

Russia.

In Russia there are industrial schools in connection with both the primary and secondary schools, also with certain charitable institutions as well as the independent industrial schools; certain of the Sunday Schools are likewise industrial schools.

Russia has a system of gymnasiums, pro-gymnasiums, real-schools and polytechnic schools, much after the German model, besides special schools for professions, and many of the technical occupations.

One of the principal establishments for technical education in Russia is the Industrial School of the Czarwitch Nicholas at St. Petersburg. This institution combines general education with instruction in everything connected with scientific and manual industries. It was first founded by private persons as an asylum for poor children destined to become artisans, and the school, having been authorized to found others, has established a school for girls on the same principle. The present patron is the heir to the throne, who subscribes annually about £150 towards its funds. The society which founded the school gave £30,000 for the building and the merchants of St. Petersburg gave more than £4,500. It took three years for its erection, during which the municipality gave annually about £3,750, and the Government supplied the site for its erection and gave £11,250.

The school was opened in 1875 with three classes—afterwards raised to five. In 1878 there were 240 pupils, with 24 teachers and instructors. Twelve pupils are maintained by the Grand Duke and one by the Grand Duchess. The city authorities maintain 100, at a cost of about £3,400 yearly, and the original society supports 38 other pupils. Some more are maintained by Government or Governmental Departments, and the rest by their parents and friends, at a yearly cost of about £32. The establishment is capable of receiving 300 resident pupils. There are no day scholars. The total expenses, with the full number of scholars would be nearly £14,000.

The (trade) workshop instruction is on a methodical plan, including the teaching of elementary data, as well as the special processes of each craft. Correct and precise work, and the proper employment of tools, are the objects in view. Orders are executed in the workshops, but no pupil is permitted to execute such work until he has passed satisfactorily through all the prescribed courses of study and instruction. When the pupils have completed their studies they may remain one or two years longer in the school to perfect themselves in any one of the crafts, and obtain the title of "apprentice workman." This extra time is devoted exclusively to work. On quitting the school each pupil receives a certificate, and those who have passed through their examinations with great credit earn the titles of "foreman" and "assistant foreman," and obtain assistance to enable them to establish themselves in business, or to complete their industrial education and practice.

The Imperial Technical Schools of St. Petersburg and Moscow.

In devising the courses of instruction to be followed in these institutions, it was endeavored to make the system of shopwork instruction as complete as possible, both as to extent and character, but without encroaching upon the time required for other indispensable studies. Among the principle features of these two schools are the following: First, the instruction shops are kept quite distinct and separate from the construction shops; in the second place, each kind of work is done in a different shop set apart for the

purpose—in addition, each shop is fitted up with so many sets of tools as there are benches for students, so that the instructor can teach as many as possible at the same time; and lastly, an endeavor is made to graduate the work in each shop according to some scale. It is found in practice that the best arrangement is according to the relative degree of difficulty presented by the samples to be made.

After the student has finished his course in the various instruction shops he may be transferred to a construction shop, either as at St. Petersburg, where no orders are taken, but constructions are made to vary the instruction, or as at Moscow, where orders are taken, and which depends largely on the proceeds from the work of the pupils.

The Practical Technological Institute at St. Petersburg.

This is one of the highest technical schools in Russia, and has capacity for 500 students. It is divided into two departments—mechanical and chemical.

The mechanical department prepares technical men for the management of mechanical workshops and of the rolling stock on railroads. The department is therefore again divided into two sections, one of them educating engineers for the workshops and the other for the railroads.

Before entering the Institute the candidate must have graduated in one of the middle class (gymnasiums) and must undergo a competitive examination.

The whole course of instruction in each department is arranged for five years, and divided into five yearly courses.

In the mechanical department the course of instruction includes Mathematical Analysis, Natural Philosophy, Theoretical and Practical Mechanics, Mechanical Technology, the Art of Construction and Mechanical Drawing. Part of the time is also employed in manual labor in various workshops and mills belonging to the Institute.

During the five years 648 hours are devoted each year to manual labor in workshops. The students then begin to exercise in the most simple works, finishing with the construction and joining of all parts of an engine.

The practical studies are in three courses. For the first course each student works with a chisel and file on cast iron. For the second course students begin by working upon wrought iron. They are then removed to the fitting shops and occupy themselves with turning, cutting screws and soldering. The last course is intended for the construction and joining of different engines.

The filer's shop has about sixty places, each fitted with a vice, and the tools necessary for the work of the course. The forging shop is fitted with ten places, and the turning shop with sixteen places. The students working in these shops in alternate sections. The lathes are all run by the foot, and the only power used is for the blast in the forging shop. The shop work is obligatory.

The Imperial Technical School at Moscow.

This is a high class special school, intended for the education of mechanical constructors, mechanical engineers and technical engineers. The school consists of two divisions, general and special, each having a course of three years; the special division is in three branches—mechanical construction, mechanical engineering and technological engineering.

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Although the theoretical subjects taught equal those in the polytechnic schools of Western Europe, means are found by which practical education is combined with theoretical. For practical education of young men as mechanical engineers and mechanical constructors, the school possesses large mechanical works, with hired workmen, accepting and carrying out orders from private individuals, and on a commercial footing, for the construction of steam engines, working engines, pumps, agricultural machines, etc.

The works consist of the following shops: Joiners' shop, engineers' shop, erectors' shop, painters' shop, a large forge with steam hammer and fan blast, iron foundry with furnace for 3,000 kilogr. of metal (about 6,300 lbs.), and brass foundry; the works have also a drawing office and counting house attached. A steam engine of 30 horse-power is

used for driving the machinery, while the foundry with fan blast and coal pulverizing mill are worked by an engine of 10 horse-power.

The school possesses, apart from the mechanical works, and intended only for the use of pupils, school workshops, viz.: Joiners' shop with turning lathe, pattern shop, metal turning, fitters' shop, smithy and moulding shop; each of these is under a skilled workman, and after passing through them, and thus becoming acquainted with turning, fitting, carpentering and forging, a student is then only admitted to the mechanical works. The auxiliaries appointed for the teaching of any mechanical work are arranged in three classes: to the first of these belong the collection of instruments employed, with which the beginner must make himself perfectly familiar before entering upon work, and afterwards to use these instruments during the execution of the work itself; to the second class belong the collection of models appointed for the systematic study of hand labor; and to the third class the collection of such articles or parts of machines in the execution of which all the previously acquired manual skill is successfully called forth; this manner of study is applied to all the branches of labor, viz.: fitting, wood-turning, carpentering, smithy and foundry work.

The fundamental and thoroughly practical character of the above system consists in educating the student from the instruction and not from the construction side; the system pre-supposes the student's ignorance and begins at the foundation, both in theory and practice; another great value of the system is that it is equally well adapted to the wants of each class or grade of students; thus if one wishes to be a mechanical engineer, and finds that he can master the highest theoretical questions, the amount of shop work is graduated to meet his needs; if, on the other hand, he looks forward to being a first-class machinist, he needs more mechanical dexterity, and therefore works out a larger number of examples, and is required to do less in higher mathematical and theoretical studies; it is also a very important feature of the system that the instruction shops are the least expensive to equip and maintain, and further, that it is not necessary for the highest success of this instruction that construction shops should be immediately connected with the school, as a student who has graduated in the instruction course will find no difficulty in completing his practical education in great manufacturing works; and the system applies to all industrial arts needing manual skill.

In 1874, Russia had six higher technical schools, with 2,666 students; twelve lower technical schools, five schools of art, three higher agricultural schools, with 293 students; and sixteen lower agricultural schools, with 1,109 students; four commercial colleges, besides other special institutions.

Sweden.

Sweden has, during recent years, actively developed technical education. . . . . There are both lower and higher technical schools, to the former class of which belong the Sunday and evening (professional) technical schools; the School of Arts and Handicrafts at Stockholm, the elementary technical schools, and lower Schools of Mines; the Chalmers Industrial School at Guttenburg is of a higher class. The highest of all technological institutions is the Polytechnic School at Stockholm.

Most of the Sunday and evening technical schools have been founded during the last twenty or thirty years, their principal object being to give necessary instruction to workmen, who, being engaged during the day can only devote their evenings and Sundays to study. . . . . The principal schools of this category are the four primary technical schools of the towns of Norrkaping, Malmo, Orebro and Boras, in connection with the elementary technical schools of those towns, and the school of Eskilstuna, which is specially intended for iron and steel workers; the total number of pupils in these five establishments was in 1876-7, 1,318.

At least nine other towns have similar schools, more or less developed, generally sustained by the corporation; the State subscribes 6,600 crowns (about £365) annually to the school of Eskilstuna, and has, besides, set apart a further sum for similar schools, on condition that the corporation contribute an equal amount at least.

The School of Arts and Handicrafts at Stockholm, founded in 1844, receives pupils of both sexes from all parts of the country, the majority being workmen already engaged

in various industries; instruction is given during the ordinary hours of the Sunday and evening schools, and also during the day. . . . In 1876-7, the number of pupils was 2,673—1,863 males and 810 females. The sum set aside for the school in the Budget of 1878 is 87,130 crowns, or about £4,810.

The Polytechnic School at Stockholm was founded in 1827, under the name of the Technological Institute. In 1869 it was increased by the addition of the School of Mines, first placed at Falun in 1827. The sum provided for this school in the Budget of 1878 was 139,200 crowns, or £7,684.

There are four elementary technical schools in the towns of Norrkaping, Malmo, Orebro and Boras. . . . The course lasts three years, and the teaching body of each school includes four lecturers (one being rector), one master workman, five extraordinary masters, and as many assistants as are necessary. The amount provided for these four schools in the Budget of 1878 was 99,400 crowns £5,488.

To the school at Boras is attached a weaving school, originally founded by a private individual. The course extends over one and a half to two years.

The total amount of State aid to technical education in Sweden in 1878 was 470,930 crowns (£26,163, about) annually, of which 58,500 crowns (or £3,560 sterling) are devoted to industrial exhibitions and various other matters in connection with this branch of public instruction.

Switzerland.

Switzerland has a system of Primary Schools, succeeded by gymnasiums, progymnasiums and real-schools, followed by the Universities and Polytechnic Institutions. There are also industrial schools for teaching the elements of trades and agriculture to boys, and household duties to girls. Switzerland has also seven agricultural schools.*

United States of America.

The Massachusetts Institute of Technology is the principal institution in America for technical instruction. The corporation consists of a president, secretary, and treasurer; a committee of nine members for the School of Industrial Science, a committee of six for Finance, of nine for the Museum, and ten for the Society of Arts; three state officials are also appointed on behalf of the Commonwealth. Power is given to the Institute to confer degrees in each of its courses of study. The teaching staff consists of twenty-three professors and fifteen other instructors and assistants.

The Institute provides a series of studies, embracing pure and applied mathematics, the physical and natural sciences, with their applications, drawing, mental and political science, and the English, French and German languages. The regular courses, each extending through four years, have been established as follows: 1. Civil and Topographical Engineering. 2. Mechanical Engineering. 3. Geology and Mining Engineering. 4. Building and Architecture. 5. Chemistry. 6. Metallurgy. 7. Natural History. 8. Physics. 9. Science and Literature. 10. Philosophy. In all of the ten courses students may select optional studies from other courses, in addition to the prescribed studies.

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*Note.—The "Eighth Annual Report of the United States Commissioner of Labor, 1892," contains an interesting and detailed chapter on the present status of Industrial Education in Switzerland. Under the head of "Trade Schools" there is full data as to where these schools are located, when organized, how governed, how sustained, as to hours of work, fees charged, etc. There are schools of watchmaking at Locle, Chaux-de-Fonds, Neuchatel, Fleurier, Soleure, Bienne, Parentrury, Saint Imier; watchmaking and mechanics, at Geneva; for carpenters and shoemakers, at Bern; for metal working, at Winterthur; for wood-carving, at Brienz; for silk weaving, at Wipkingen, near Zurich; and for weaving, at Wattwyl; a trade school for ladies' tailoring and needlework, at Zurich; trade schools for women at Bern and Basel; a school for servants, in Bern and Lenzburg; and house-keeping schools in Buchs and Worb. Under the head of "Industrial Art Schools" are enumerated the Municipal School of Art, Geneva; the Industrial Art School, Zurich; the Drawing School for Trades and Industries, Saint Gall. Then, again, there are the "Institutions for the Education of Working People," including the Industrial School at Riesbach; School for Professional Improvement, Winterthur; Workingmen's School, Bern; School for Professional Improvement, Saint Gall; Professional Academy, Geneva; the Technikum, Winterthur; and the Polytechnic School, Zurich.

The Massachusetts Institute of Technology, following the system of the schools at St. Petersburg and Moscow, in Russia, has recently opened various "mechanical laboratories" for workshop instruction to engineers, etc. These include a "vice shop," a "lathe shop," a "planer shop," a "forge shop," and a "foundry."

In the vice shop, chipping, filing, etc., are taught; it is fitted with four heavy benches, each 18 feet long by 3 wide; eight vices are attached to each bench, and it is found that one teacher can readily instruct the thirty-two students thus accommodated.

The teaching commences with the most elementary work; the student is given a rectangular block of cast iron, in size, 4 by 2 by $1\frac{1}{2}$ inches; the two long narrower sides are planed, and on one of them two lines are drawn close to the edge; the task is to file down to these lines and leave a true surface; the blocks are sent in, and marks are allotted; succeeding lessons follow of progressive difficulty; no trouble has been experienced in procuring capable teachers, and the results at present are described as showing a great success.

The forge shop is fitted with eight forges. An exhaust blower, connected to the hoods of the forges, carries off smoke and dust, making this shop well ventilated and comfortable. It is found that, at all events, till considerable skill has been acquired, only one student can with advantage work at each forge.

The "Worcester County Free Institute for Industrial Sciences" has a yearly income of about £5,000; the instruction is gratis to all natives of the County of Worcester, and to twenty-three State's citizens of Massachusetts; students from other counties pay £20 per annum, and the other expenses amount to about £60; the courses of instruction embrace Machine and Architectural Engineering, Chemistry, Natural Philosophy, Modern Languages and Drawing; students devoting themselves to special professions and trades are instructed accordingly; in the mechanical course students must work five months in the machine workshop before being admitted to the lectures. The following courses extend over three years, during which ten hours weekly for ten months must be devoted to practical work in the workshop, the work in which includes instruction in the use and manufacture of implements, modelling and drawing; in the other courses the time of study is three years. The articles made in the workshops are sold, the average excess of expenditure over income being about £600.

The curriculum of the "Industrial University of Illinois" embraces courses in Agricultural knowledge, Engineering, Physical Sciences, Natural Philosophy, Literature, and General Sciences, Commerce and Domestic Economy and Art; the courses are open to students of both sexes, and are chiefly practical; in one of the machine workshops articles are produced for the market, and the University has its own printing office; the complete course of study is spread over four years, each of thirty-six weeks' school attendance; the annual expenses of students, chiefly for maintenance, vary from £30 to £60.

Among other principal institutions are "Stevens' Institute for Technology," at Hoboken, near New York, and the "Cornell University"; the course in the mechanical department of the latter extends over four years, during which the students are instructed ten hours weekly in the workshops.